# SERVICE MANUAL

SANYO

## STEREO CASSETTE TAPE DECK

# RD 203

EUROPE

142 330 00

## SPECIFICATIONS

| | |
|---|---|
| Power Source | AC 120/220V (50/60Hz) |
| Power Consumption | 14W |
| Recording System | AC Bias |
| Erasing System | AC Erasing |
| Tape Speed | 1-7/8ips. ±2% |
| Wow & Flutter | 0.08% WRMS |
| Torque | |
| Playback | 35 – 45g-cm |
| Fast Forward | 60 – 90g-cm |
| Rewind | 60 – 90g-cm |
| Fast Forward Time | 100sec. (C-60 cassette) |
| Rewind Time | 100sec. (C-60 cassette) |
| Frequency Response (Overall, DOLBY : OFF) | |
| Fe2O3 (7dB band) | 40 – 12.5kHz |
| CrO2 (7dB band) | 40 – 14kHz |
| Metal (7dB band) | 40 – 16kHz |
| Signal to Noise Ratio (According to CCIR method : Weighted, DOLBY : ON) | |
| Fe2O3 | 58dB |
| CrO2 | 60dB |
| Metal | 60dB |
| Signal to Noise Ratio (According to CCIR method : Weighted, DOLBY : OFF) | |
| Fe2O3 | 50dB |
| CrO2 | 52dB |
| Metal | 52dB |
| Erase Ratio (Overall) | |
| Fe2O3 | 60dB |
| CrO2 | 60dB |
| Metal | 60dB |
| Crosstalk (with Fe2O3) | |
| Track to Track | 60dB |
| Channel Separation (with Fe2O3) | 35dB |
| Harmonic Distortion (K3) | |
| Fe2O3 | 1.8% |
| CrO2 | 1.5% |
| Metal | 1.5% |
| Input Sensitivity and Impedance | |
| Microphone | 1mV/15k-ohm |
| LINE IN | 100mV/50k-ohm |
| DIN INPUT | 1mV/10k-ohm |
| Output Level and Impedance | |
| LINE OUT | 500mV/2k-ohm (47k-ohm load) |
| DIN OUTPUT | 520mV/22k-ohm (470k-ohm load) |
| Headphone | 30mV/500-ohm (8-ohm load) |
| Oscillation Frequency | 85kHz |
| Dimensions (W x H x D) | 420 x 120 x 205mm |
| Weight | 4.5kg |

**—Specifications subject to change without notice.—**

**WM-5270**

**NOTE: The above mentioned specifications are mainly based on the IHF measurements standard. They can therefore not directly be compared with specifications based on the DIN standard or other standards.**

# MECHANICAL ADJUSTMENTS

## EQUIPMENT REQUIRED

- Cassette-type Torque Meter (100g maximum)
- Thickness Gauge
- Cassette Tape (C-120)
- Silicone Grease (Example: SHIN-ETSU SILICONE KS-64)
- Paint or Glue

## GENERAL REMARKS

- Before adjusting the mechanism of the unit, clean the tape contacting surfaces with a soft cloth soaked in alcohol. Trouble may occur because of oil and grease stains.

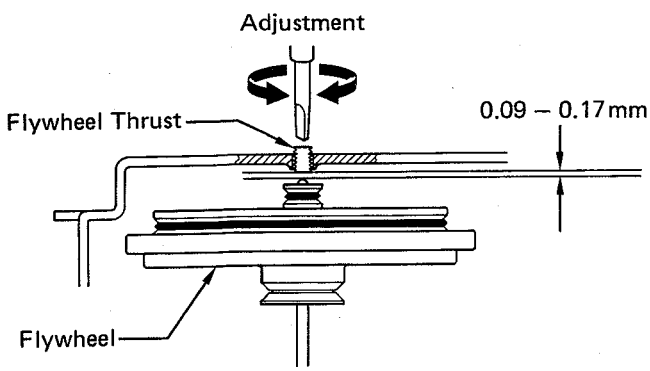
- The Belts must be kept clean while the adjustments are performed.
  * Silicone grease (Example: SHIN-ETSU SILICONE KS-64) is applied to the Drive Belt and the Take-up Belt to protect them from abrasion.
    If necessary, apply a proper amount of silicone grease (Example: SHIN-ETSU SILICONE KS-64) to each groove of the Flywheel and Friction assemblies.

  **NOTE:**
  Silicone grease is not applied to the Replacement Parts.

- **Never apply grease or oil to the ASO Belt. If applied, wipe it clean with benzine.**

## FLYWHEEL THRUST ADJUSTMENT

1. Check to see that the clearance between the Flywheel Thrust and Flywheel is 0.09 – 0.17mm with the chassis upside down as illustrated.




2. Turn the Thrust counter-clockwise by 45° – 90° after the clearance of "0" is obtained.

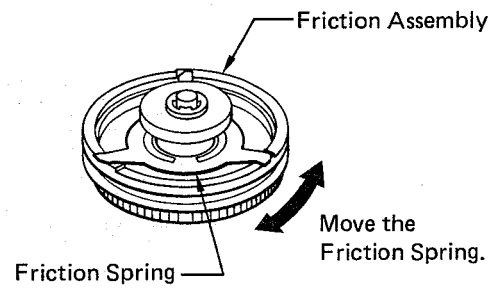
3. After the adjustment, secure the Flywheel Thrust with paint or glue.

## TAKE-UP TORQUE ADJUSTMENT

1. Insert the cassette-type torque meter into the unit and measure the torque of the Take-up Reel Gear with the unit in the playback mode. It should be 30 – 50g-cm.

2. If necessary, adjust the torque by moving the Friction Spring of the Friction Assembly as illustrated.

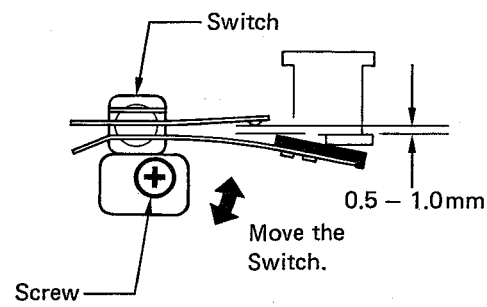
**Take-up Torque: 30 – 50g-cm**




**NOTE:**
If the Take-up Reel Gear and the Take-up Gear run idle and produce an abnormal sound, adjust the take-up torque as low as possible.

## MUTING SWITCH ADJUSTMENT

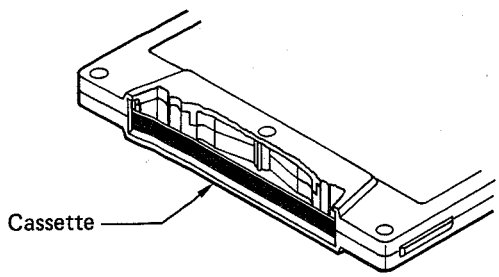
This Switch is normally closed. The clearance between the both contacts of the switch should be 0.5 – 1.0mm with the PLAY button down.



# MECHANICAL ADJUSTMENTS (Continued)

## TAPE RUNNING CONDITION ADJUSTMENT

1. Prepare the cassette tape (C-120) as the test tape for this adjustment.



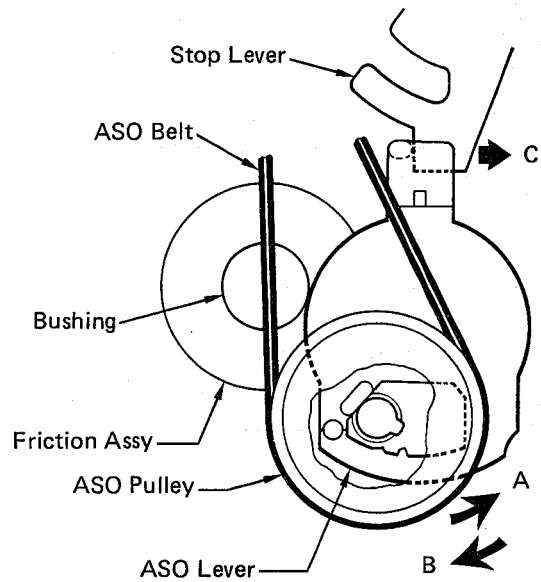

2. Play back the test tape. Then, check to see that the tape is not curling along the Tape Guide of the Erase Head while the test tape is being played back.

3. If necessary, tighten the adjusting screw and slowly loosen the adjusting screw until the tape is exactly centered in the Tape Guide of the Erase Head.

4. After the adjustment, secure the adjusting screw with paint or glue.

## AUTO SHUT-OFF MECHANISM (TROUBLE SHOOTING)

**If there is a problem with the Auto Shut-off mechanism repair it referring to the following troubleshooting.**




**NOTE:**
Although there is a case that the button is not locked by pressing one of the Select Buttons (PLAY, FF, or REW) without Power supplied to the unit after the unit has automatically shut off, this symptom is not a mulfunction.

| SYMPTOM | POSSIBLE CAUSE | | REMEDY |
|---|---|---|---|
| ASO mechanism does not work properly. | ASO Spring is unhooked | | Repair. |
| | Grease is not applied suficiently to the circumference of the Bushing or is not applied at all. | | Apply grease. |
| | ASO Lever does not move properly. | Shaft of ASO Lever is clogged by grease or dust. | Remove grease or dust by wiping Shaft of ASO Lever with alcohol. |
| ASO mechanism does not work at all. | ASO Lever is in contact with Take-up Pulley of Friction Assembly. | | Insert the washer below the E ring of the Bushing and keep the clearance between the E ring and the Bushing less than 0.5mm. |
| | ASO Belt is worn out. | | Replace ASO Belt. |
| | ASO Belt is stained. | | Wipe ASO Belt with benzine. |

# ELECTRICAL ADJUSTMENTS

## EQUIPMENT REQUIRED

- VTVM (2 sets)
- Frequency Counter
- Audio Signal Generator
- Dummy Load (47k-ohm)
- Dualtrace Synchroscope
  - * MODE . . . . . CHOP (chopped)
  - * SOURCE . . . . . INT (internal), CH1 or CH2
  - * SWEEP MODE . . . . . AUTO (automatic)
- Test Tapes
  - * 3kHz test tape (Example: TEAC MTT-111) for Tape Speed Adjustment
  - * 10kHz test tape (Example: TEAC MTT-114) for Head Azimuth Adjustment
  - * Test Tape for DOLBY Level Calibration (Example: TEAC MTT-150) in Playback Gain Adjustment
- Test Tape for recording and playback operations
  - * Metal Tape (Example: TDK AC-701)
- Alignment Tool

**Prior to the Electrical Adjustments, set the unit and the measuring instruments as follows:**

- DOLBY NR Switch . . . . . OFF
- Tape Select Switch . . . . . NORMAL
- Input Select Switch . . . . . LINE
- Input Level Control . . . . . Maximum
- Audio Signal Generator Output . . . . . 1kHz 0dB (1V)

**NOTE:**
The electrical adjustments should be performed in the order as described below.

## TAPE SPEED ADJUSTMENT

Connect the frequency counter to the left or right channel LINE OUT.

| Test Tape | Position of Tape Switch | Adjustment | Remarks |
|---|---|---|---|
| MTT-111 | Normal | Potentiometer inside Motor | 3kHz (±15Hz) |

## HEAD AZIMUTH ADJUSTMENT

Remove the cassette compartment lid from the unit and connect the dualtrace synchroscope, and the VTVM to both channel LINE OUT.

| Test Tape | Position of Tape Switch | Adjustment | Remarks |
|---|---|---|---|
| MTT-114 | Normal | Azimuth Adjusting Screw | Wave Forms: Overlapped<br>VTVM: Max. |

## PLAYBACK GAIN ADJUSTMENT

Connect the VTVM to LINE OUT.

| Test Tape | Position of Tape Switch | Adjustment | Remarks |
|---|---|---|---|
| MTT-150<br>(DOLBY Level Calibration Tape) | Normal | P101 (Left)<br>P201 (Right) | 580mV |

## RECORDING BIAS ADJUSTMENT

Connect the audio signal generator and the attenuator to the LINE IN, and the VTVM to the LINE OUT.

| Step | Input Signal | Test Tape | Position of Tape Switch | Adjustment | Remarks |
|---|---|---|---|---|---|
| – | 1kHz and 14kHz at 7.1 mV (–43dB) | TDK AC-701 | Metal | P103 (Left)<br>P203 (Right) | Output:<br>14kHz = 1kHz<br>Deviation ±1dB |

## RECORDING GAIN ADJUSTMENT

Connect the audio signal generator and the attenuator to the LINE IN, and the VTVM to the LINE OUT.

| Step | Input Signal | Test Tape | Position of Tape Switch | Adjustment | Remarks |
|---|---|---|---|---|---|
| 1 | 1kHz at 178mV (–15dB) | TDK AC-701 | Metal | Input Level Controls | 335mV (–9.5dB) |
| 2 | | | | P102 (Left)<br>P202 (Right) | |

# PARTS LIST

**PRODUCT SAFETY NOTICE**

PRODUCT SAFETY SHOULD BE CONSIDERED WHEN A COMPONENT REPLACEMENT IS MADE IN ANY AREA OF AN UNIT. COMPONENTS INDICATED BY A MARK ⚠ IN THIS PARTS LIST AND THE SCHEMATIC DIAGRAM SHOW COMPONENTS WHOSE VALUE HAS SPECIAL SIGNIFICANCE TO PRODUCT SAFETY. IT IS PARTICULARLY RECOMMENDED THAT ONLY PARTS SPECIFIED ON THE FOLLOWING PARTS LIST BE USED FOR COMPONENT REPLACEMENT POINTED OUT BY THE MARK.

| Ref. No. | Part No. | Description | Q'ty |
|---|---|---|---|
| | **PACKAGE** | | |
| | 141 6 1419 47201 | Individual Carton | 1 |
| | 141 6 1449 62500 | Styrofoam Case | 1 |
| | 141 6 1449 62600 | Styrofoam Case | 1 |
| | 141 6 1449 66100 | Pad | 1 |
| | 141 6 2519 08015 | Poly Cover | 1 |
| | 141 6 2519 09390 | Poly Cover | 1 |
| | 141 6 2519 24033 | Poly Cover | 1 |
| | 141 6 4559 00100 | Serial No. Sheet | 2 |
| | **ACCESSORIES** | | |
| | 4 2369 70571 | Patch Cord | 2 |
| | 4 2419 71264 | Cassette Tape | 1 |
| | 141 2 3529 10600 | Cassette Stopper | 1 |
| | 141 6 4119 99800 | Instruction Manual | 1 |
| | 141 6 4729 07400 | Caution Label | 1 |
| | 141 6 4729 07700 | Caution Label | 1 |
| | **CABINET** | | |
| | 141 0 1119 67503 | Completed Cabinet Front | 1 |
| | 141 0 1319 00100 | Cassette Lid Clear Assy | 1 |
| | 141 2 1119 60500 | Cover | 1 |
| | 141 2 1249 23900 | Cassette Lid | 1 |
| | 141 2 1339 23100 | Head Cover | 1 |
| | 141 2 1419 09267 | Rating Plate | 1 |
| | 141 2 2449 32000 | Sheet | 1 |
| | 141 2 2899 14000 | Adhesive Sheet | 2 |
| | 103 3 1703 00811 | Screw, Bind Hd. Tapping-2+M3.0x8 | 1 |
| | 103 3 1703 01211 | Screw, Bind Hd. Tapping-2+M3.0x12 | 5 |
| | 103 3 1703 01218 | Screw, Bind Hd. Tapping-2+M3.0x12 | 2 |
| | 143 3 1903 01411 | Screw, Brazier Hd. Tapping-B +M3.0x14 | 1 |
| | 141 2 1619 73000 | Knob | 1 |
| | 141 2 1619 73100 | Switch Knob | 4 |
| | 141 2 1619 73201 | Knob | 1 |
| | 141 2 1639 36900 | Knob | 2 |
| | **CONTROL CIRCUIT P.C.B. ASSY** | | |
| | 4 1329 75890 | Control Circuit P.C.B. Assy | 1 |
| F1 | ⚠ 4 2349 70040 | Fuse (500 mA) | 1 |
| F2 | ⚠ 4 2349 70040 | Fuse (500 mA) | 1 |
| | 4 2359 70910 | Fuse Holder | 4 |
| C314 | CC1 0 3500 KE00C | Ceramic 0.01 μF 50V ±10% | 1 |
| C315 | CD4 7 7250 0001V | Electrolytic 470 μF 25V | 1 |
| C316 | CD1 0 8350 0001V | Electrolytic 1000 μF 35V | 1 |
| C317 | CD1 0 8160 0001V | Electrolytic 1000 μF 16V | 1 |
| C330 | CC2 2 3500 KE00C | Ceramic 0.022 μF 50V ±10% | 1 |
| C331 | CC2 2 3500 KE00C | Ceramic 0.022 μF 50V ±10% | 1 |
| D306 | 4 2029 70620 | Bridge Diode | 1 |
| D307 | 202 5 2450 13510 | Diode, DS135 | 1 |
| D308 | 4 2029 71190 | Diode, 05Z20 | 1 |
| R311 | RD3 3 A251 JS000 | Carbon 3.3 ohm 1/4W ±5% | 1 |
| R312 | RD3 3 1251 JS000 | Carbon 330 ohm 1/4W ±5% | 1 |
| R313 | RD5 6 A251 JS000 | Carbon 5.6 ohm 1/4W ±5% | 1 |
| | **AMPLIFIER P.C.B. ASSY** | | |
| | 4 1329 75964 | Amplifier P.C.B. Assy | 1 |
| J4 | 4 2359 73601 | Jack 2P (Line In) | 1 |
| J5 | 4 2359 73601 | Jack 2P (Line Out) | 1 |
| J6 | 4 2359 71552 | DIN (Record/Play) | 1 |

| Ref. No. | Part No. | Description | Q'ty |
|---|---|---|---|
| | **AMPLIFIER P.C.B. ASSY** | | |
| CN3 | 4 2369 70740 | RT Pin | 1 |
| CN4 | 4 2369 70740 | RT Pin | 1 |
| CN5 | 4 2369 70740 | RT Pin | 1 |
| | 141 2 4729 04700 | Staple 10 | 25 |
| C101 | CC2 7 1500 KE00C | Ceramic 270 pF 50V ±10% | 1 |
| C102 | CC4 7 1500 KE00C | Ceramic 470 pF 50V ±10% | 1 |
| C103 | CD1 0 7100 0001V | Electrolytic 100 μF 10V | 1 |
| C104 | CD4 7 5100 0000V | Electrolytic 4.7 μF 10V | 1 |
| C105 | CD4 7 6100 0001V | Electrolytic 47 μF 10V | 1 |
| C106 | CD1 0 6100 0000V | Electrolytic 10 μF 10V | 1 |
| C107 | CC5 6 0500 KD00C | Ceramic 56 pF 50V ±10% | 1 |
| C108 | CM3 3 3500 K00SV | Mylar 0.033 μF 50V ±10% | 1 |
| C109 | CM1 5 3500 K00SV | Mylar 0.015 μF 50V ±10% | 1 |
| C110 | CD2 2 7160 0001V | Electrolytic 220 μF 16V | 1 |
| C111 | CD1 0 7160 0001V | Electrolytic 100 μF 16V | 1 |
| C112 | CD1 0 5100 0000V | Electrolytic 1 μF 10V | 1 |
| C113 | CC1 0 1500 KE00C | Ceramic 100 pF 50V ±10% | 1 |
| C114 | CA3 3 4100 K000V | Aluminum 0.33 μF 10V ±10% | 1 |
| C115 | CA1 0 4100 K000V | Aluminum 0.1 μF 10V ±10% | 1 |
| C116 | CD1 0 6100 0000V | Electrolytic 10 μF 10V | 1 |
| C117 | CM1 2 3500 K00SV | Mylar 0.012 μF 50V ±10% | 1 |
| C118 | CM4 7 3500 K00SV | Mylar 0.047 μF 50V ±10% | 1 |
| C119 | CD1 0 6100 0000V | Electrolytic 10 μF 10V | 1 |
| C120 | CM4 7 2500 K00SV | Mylar 0.0047 μF 50V ±10% | 1 |
| C121 | CM5 6 2500 K00SV | Mylar 0.0056 μF 50V ±10% | 1 |
| C122 | CM2 7 3500 K00SV | Mylar 0.027 μF 50V ±10% | 1 |
| C123 | CM1 2 2500 K00SV | Mylar 0.0012 μF 50V ±10% | 1 |
| C124 | CD1 0 6100 0000V | Electrolytic 10 μF 10V | 1 |
| C125 | CD1 0 6100 0000V | Electrolytic 10 μF 10V | 1 |
| C126 | CD1 0 6100 0000V | Electrolytic 10 μF 10V | 1 |
| C127 | CD4 7 4160 0000V | Electrolytic 0.47 μF 16V | 1 |
| C128 | CD4 7 6100 0001V | Electrolytic 47 μF 10V | 1 |
| C129 | CD1 0 6100 0000V | Electrolytic 10 μF 10V | 1 |
| C130 | CA2 2 4100 K000V | Aluminum 0.22 μF 10V ±10% | 1 |
| C132 | CM2 7 2500 K00SV | Mylar 0.0027 μF 50V ±10% | 1 |
| C133 | CC1 0 1500 KE00C | Ceramic 100 pF 50V ±10% | 1 |
| C134 | CD1 0 5100 0000V | Electrolytic 1 μF 10V | 1 |
| C135 | CD4 7 4160 0000V | Electrolytic 0.47 μF 16V | 1 |
| C136 | CD1 0 6100 0000V | Electrolytic 10 μF 10V | 1 |
| C137 | CD1 0 6100 0000V | Electrolytic 10 μF 10V | 1 |
| C138 | CC2 2 1500 KE00C | Ceramic 220 pF 50V ±10% | 1 |
| C139 | CC2 2 2500 KE00C | Ceramic 0.0022 μF 50V ±10% | 1 |
| C140 | CD1 0 5100 0000V | Electrolytic 1 μF 10V | 1 |
| C141 | CD1 0 5100 0000V | Electrolytic 1 μF 10V | 1 |
| C180 | CC4 7 1500 KE00C | Ceramic 470 pF 50V ±10% | 1 |
| C201 | CC2 7 1500 KE00C | Ceramic 270 pF 50V ±10% | 1 |
| C202 | CC4 7 1500 KE00C | Ceramic 470 pF 50V ±10% | 1 |
| C203 | CD1 0 7100 0001V | Electrolytic 100 μF 10V | 1 |
| C204 | CD4 7 5100 0000V | Electrolytic 4.7 μF 10V | 1 |
| C205 | CD4 7 6100 0001V | Electrolytic 47 μF 10V | 1 |
| C206 | CD1 0 6100 0000V | Electrolytic 10 μF 10V | 1 |
| C207 | CC5 6 0500 KD00C | Ceramic 56 pF 50V ±10% | 1 |
| C208 | CM3 3 3500 K00SV | Mylar 0.033 μF 50V ±10% | 1 |
| C209 | CM1 5 3500 K00SV | Mylar 0.015 μF 50V ±10% | 1 |
| C210 | CD2 2 7160 0001V | Electrolytic 220 μF 16V | 1 |
| C211 | CD1 0 7160 0001V | Electrolytic 100 μF 16V | 1 |
| C212 | CD1 0 5100 0000V | Electrolytic 1 μF 10V | 1 |
| C213 | CC1 0 1500 KE00C | Ceramic 100 pF 50V ±10% | 1 |
| C214 | CA3 3 4100 K000V | Aluminum 0.33 μF 10V ±10% | 1 |

# PARTS LIST (Continued)

| Ref. No. | Part No. | Description | Q'ty |
|---|---|---|---|
| AMPLIFIER P.C.B. ASSY | | | |
| C215 | CA1 0 4100 K000V | Aluminum 0.1 μF 10V ±10% | 1 |
| C216 | CD1 0 6100 0000V | Electrolytic 10 μF 10V | 1 |
| C217 | CM1 2 3500 K00SV | Mylar 0.012 μF 50V ±10% | 1 |
| C218 | CM4 7 3500 K00SV | Mylar 0.047 μF 50V ±10% | 1 |
| C219 | CD1 0 6100 0000V | Electrolytic 10 μF 10V | 1 |
| C220 | CM4 7 2500 K00SV | Mylar 0.0047 μF 50V ±10% | 1 |
| C221 | CM5 6 2500 K00SV | Mylar 0.0056 μF 50V ±10% | 1 |
| C222 | CM2 7 3500 K00SV | Mylar 0.027 μF 50V ±10% | 1 |
| C223 | CM1 2 2500 K00SV | Mylar 0.0012 μF 50V ±10% | 1 |
| C224 | CD1 0 6100 0000V | Electrolytic 10 μF 10V | 1 |
| C225 | CD1 0 6100 0000V | Electrolytic 10 μF 10V | 1 |
| C226 | CD1 0 6100 0000V | Electrolytic 10 μF 10V | 1 |
| C227 | CD4 7 4160 0000V | Electrolytic 0.47 μF 16V | 1 |
| C228 | CD4 7 6100 0001V | Electrolytic 47 μF 10V | 1 |
| C229 | CD1 0 6100 0000V | Electrolytic 10 μF 10V | 1 |
| C230 | CA2 2 4100 K000V | Aluminum 0.22 μF 10V ±10% | 1 |
| C232 | CM2 7 2500 K00SV | Mylar 0.0027 μF 50V ±10% | 1 |
| C233 | CC1 0 1500 KE00C | Ceramic 100 pF 50V ±10% | 1 |
| C234 | CD1 0 5100 0000V | Electrolytic 1 μF 10V | 1 |
| C235 | CD4 7 4160 0000V | Electrolytic 0.47 μF 16V | 1 |
| C236 | CD1 0 6100 0000V | Electrolytic 10 μF 10V | 1 |
| C237 | CD1 0 6100 0000V | Electrolytic 10 μF 10V | 1 |
| C238 | CC2 2 1500 KE00C | Ceramic 220 pF 50V ±10% | 1 |
| C239 | CC2 2 2500 KE00C | Ceramic 0.0022 μF 50V ±10% | 1 |
| C240 | CD1 0 5100 0000V | Electrolytic 1 μF 10V | 1 |
| C241 | CD1 0 5100 0000V | Electrolytic 1 μF 10V | 1 |
| C280 | CC4 7 1500 KE00C | Ceramic 470 pF 50V ±10% | 1 |
| C301 | CD1 0 7250 0001V | Electrolytic 100 μF 25V | 1 |
| C302 | CD1 0 7160 0001V | Electrolytic 100 μF 16V | 1 |
| C304 | CD4 7 4250 0000V | Electrolytic 0.47 μF 25V | 1 |
| C305 | CC2 2 2500 KE00C | Ceramic 0.0022 μF 50V ±10% | 1 |
| C306 | CM2 2 3500 K00SV | Mylar 0.022 μF 50V ±10% | 1 |
| C307 | CP8 2 2101 J000V | Polypropylene 0.0082 μF 100V ±5% | 1 |
| C308 | CM5 6 2500 K00SV | Mylar 0.0056 μF 50V ±10% | 1 |
| C309 | CM5 6 2500 K00SV | Mylar 0.0056 μF 50V ±10% | 1 |
| C310 | CM1 8 3500 K00SV | Mylar 0.018 μF 50V ±10% | 1 |
| C311 | CD1 0 7100 0001V | Electrolytic 100 μF 10V | 1 |
| C313 | CD4 7 7250 0001V | Electrolytic 470 μF 25V | 1 |
| CN1 | 4 2369 71450 | Connector 6P | 1 |
| CN2 | 4 2369 71480 | Connector 3P | 1 |
| D101 | 202 5 9110 18820 | Diode, 1S188 | 1 |
| D102 | 202 5 9110 18820 | Diode, 1S188 | 1 |
| D103 | 202 5 9530 44810 | Diode, DS448 | 1 |
| D104 | 202 5 9530 44810 | Diode, DS448 | 1 |
| D201 | 202 5 9110 18820 | Diode, 1S188 | 1 |
| D202 | 202 5 9110 18820 | Diode, 1S188 | 1 |
| D203 | 202 5 9530 44810 | Diode, DS448 | 1 |
| D204 | 202 5 9530 44810 | Diode, DS448 | 1 |
| D301 | 202 5 3210 05120 | Diode, GZA5.1U | 1 |
| D302 | 202 5 3210 05120 | Diode, GZA5.1U | 1 |
| D304 | 202 5 9530 44810 | Diode, DS448 | 1 |
| D312 | 202 5 3210 05120 | Diode, GZA5.1U | 1 |
| D313 | 202 5 9530 44810 | Diode, DS448 | 1 |
| D330 | 202 5 9530 44810 | Diode, DS448 | 1 |
| D331 | 202 5 9530 44810 | Diode, DS448 | 1 |
| IC101 | 4 2069 70380 | IC, NE646B | 1 |
| IC201 | 4 2069 70380 | IC, NE646B | 1 |
| L101 | 4 2729 70290 | Coil (33 mH) | 1 |
| L102 | 4 2729 70290 | Coil (33 mH) | 1 |
| L103 | 4 2729 70342 | DOLBY Coil Filter | 1 |
| L201 | 4 2729 70290 | Coil (33 mH) | 1 |
| L202 | 4 2729 70290 | Coil (33 mH) | 1 |
| L203 | 4 2729 70342 | DOLBY Coil Filter | 1 |
| T301 | 4 2589 71720 | OSC Transformer | 1 |
| P101 | 4 2229 73270 | Potentiometer (B-20k) | 1 |
| P102 | 4 2229 73270 | Potentiometer (B-20k) | 1 |
| P103 | 4 2229 73300 | Potentiometer (B-100k) | 1 |
| P201 | 4 2229 73270 | Potentiometer (B-20k) | 1 |
| P202 | 4 2229 73270 | Potentiometer (B-20k) | 1 |

| Ref. No. | Part No. | Description | Q'ty |
|---|---|---|---|
| AMPLIFIER P.C.B. ASSY | | | |
| P203 | 4 2229 73300 | Potentiometer (B-100k) | 1 |
| Q101 | 203 5 5100 69362 | Transistor, 2SC693 | 1 |
| Q102 | 203 5 5100 69362 | Transistor, 2SC693 | 1 |
| Q103 | 203 5 5100 69362 | Transistor, 2SC693 | 1 |
| Q104 | 203 5 5100 53650 | Transistor, 2SC536 | 1 |
| Q105 | 203 5 5100 53650 | Transistor, 2SC536 | 1 |
| Q106 | 203 5 5100 53660 | Transistor, 2SC536 | 1 |
| Q107 | 203 5 5100 53660 | Transistor, 2SC536 | 1 |
| Q108 | 203 5 5100 53660 | Transistor, 2SC536 | 1 |
| Q109 | 203 5 5100 53660 | Transistor, 2SC536 | 1 |
| Q110 | 203 5 5100 53660 | Transistor, 2SC536 | 1 |
| Q112 | 203 5 5100 53660 | Transistor, 2SC536 | 1 |
| Q113 | 203 5 5100 53660 | Transistor, 2SC536 | 1 |
| Q114 | 203 5 5100 53660 | Transistor, 2SC536 | 1 |
| Q117 | 203 5 5100 53650 | Transistor, 2SC536 | 1 |
| Q201 | 203 5 5100 69362 | Transistor, 2SC693 | 1 |
| Q202 | 203 5 5100 69362 | Transistor, 2SC693 | 1 |
| Q203 | 203 5 5100 69362 | Transistor, 2SC693 | 1 |
| Q204 | 203 5 5100 53650 | Transistor, 2SC536 | 1 |
| Q205 | 203 5 5100 53650 | Transistor, 2SC536 | 1 |
| Q206 | 203 5 5100 53660 | Transistor, 2SC536 | 1 |
| Q207 | 203 5 5100 53660 | Transistor, 2SC536 | 1 |
| Q208 | 203 5 5100 53660 | Transistor, 2SC536 | 1 |
| Q209 | 203 5 5100 53660 | Transistor, 2SC536 | 1 |
| Q210 | 203 5 5100 53660 | Transistor, 2SC536 | 1 |
| Q212 | 203 5 5100 53660 | Transistor, 2SC536 | 1 |
| Q213 | 203 5 5100 53660 | Transistor, 2SC536 | 1 |
| Q214 | 203 5 5100 53660 | Transistor, 2SC536 | 1 |
| Q217 | 203 5 5100 53650 | Transistor, 2SC536 | 1 |
| Q301 | 4 2039 70431 | Transistor, 2SC1815 | 1 |
| Q302 | 4 2039 70431 | Transistor, 2SC1815 | 1 |
| Q312 | 203 5 5100 53660 | Transistor, 2SC536 | 1 |
| R101 | RD1 5 3251 JS000 | Carbon 15k ohm 1/4W ±5% | 1 |
| R102 | RD2 7 4251 JS000 | Carbon 270k ohm 1/4W ±5% | 1 |
| R103 | RD4 7 0251 JS000 | Carbon 47 ohm 1/4W ±5% | 1 |
| R104 | RD2 2 4251 JS000 | Carbon 220k ohm 1/4W ±5% | 1 |
| R105 | RD1 5 3251 JS000 | Carbon 15k ohm 1/4W ±5% | 1 |
| R106 | RD1 0 2251 JS000 | Carbon 1k ohm 1/4W ±5% | 1 |
| R107 | RD1 0 4251 JS000 | Carbon 100k ohm 1/4W ±5% | 1 |
| R108 | RD1 8 2251 JS000 | Carbon 1.8k ohm 1/4W ±5% | 1 |
| R109 | RD3 9 2251 JS000 | Carbon 3.9k ohm 1/4W ±5% | 1 |
| R110 | RD3 9 4251 JS000 | Carbon 390k ohm 1/4W ±5% | 1 |
| R111 | RD3 9 2251 JS000 | Carbon 3.9k ohm 1/4W ±5% | 1 |
| R112 | RD1 0 4251 JS000 | Carbon 100k ohm 1/4W ±5% | 1 |
| R113 | RD3 9 2251 JS000 | Carbon 3.9k ohm 1/4W ±5% | 1 |
| R114 | RD4 7 2251 JS000 | Carbon 4.7k ohm 1/4W ±5% | 1 |
| R115 | RD1 0 2251 JS000 | Carbon 1k ohm 1/4W ±5% | 1 |
| R116 | RD1 0 2251 JS000 | Carbon 1k ohm 1/4W ±5% | 1 |
| R117 | RD2 2 4251 JS000 | Carbon 220k ohm 1/4W ±5% | 1 |
| R118 | RD3 3 1251 JS000 | Carbon 330 ohm 1/4W ±5% | 1 |
| R119 | RD1 5 4251 JS000 | Carbon 150k ohm 1/4W ±5% | 1 |
| R120 | RD1 0 2251 JS000 | Carbon 1k ohm 1/4W ±5% | 1 |
| R121 | RD2 7 4251 JS000 | Carbon 270k ohm 1/4W ±5% | 1 |
| R122 | RD3 3 2251 JS000 | Carbon 3.3k ohm 1/4W ±5% | 1 |
| R123 | RD4 7 3251 JS000 | Carbon 47k ohm 1/4W ±5% | 1 |
| R124 | RD1 8 1251 JS000 | Carbon 180 ohm 1/4W ±5% | 1 |
| R125 | RD1 0 3251 JS000 | Carbon 10k ohm 1/4W ±5% | 1 |
| R126 | RD1 0 3251 JS000 | Carbon 10k ohm 1/4W ±5% | 1 |
| R127 | RD5 6 2251 JS000 | Carbon 5.6k ohm 1/4W ±5% | 1 |
| R128 | RD1 0 2251 JS000 | Carbon 1k ohm 1/4W ±5% | 1 |
| R129 | RD1 0 2251 JS000 | Carbon 1k ohm 1/4W ±5% | 1 |
| R130 | RD2 2 2251 JS000 | Carbon 2.2k ohm 1/4W ±5% | 1 |
| R131 | RD1 0 5251 JS000 | Carbon 1M ohm 1/4W ±5% | 1 |
| R132 | RD2 2 2251 JS000 | Carbon 2.2k ohm 1/4W ±5% | 1 |
| R133 | RD6 8 2251 JS000 | Carbon 6.8k ohm 1/4W ±5% | 1 |
| R134 | RD1 5 2251 JS000 | Carbon 1.5k ohm 1/4W ±5% | 1 |
| R135 | RD4 3 4251 JS000 | Carbon 430k ohm 1/4W ±5% | 1 |
| R136 | RD6 2 3251 JS000 | Carbon 62k ohm 1/4W ±5% | 1 |
| R137 | RD5 6 2251 JS000 | Carbon 5.6k ohm 1/4W ±5% | 1 |
| R138 | RD7 5 1251 JS000 | Carbon 750 ohm 1/4W ±5% | 1 |

# PARTS LIST (Continued)

| Ref. No. | Part No. | Description | Q'ty |
|---|---|---|---|
| | AMPLIFIER P.C.B. ASSY | | |
| R139 | RD2 2 3251 JS000 | Carbon 22k ohm 1/4W ±5% | 1 |
| R140 | RD1 5 3251 JS000 | Carbon 15k ohm 1/4W ±5% | 1 |
| R141 | RD1 0 3251 JS000 | Carbon 10k ohm 1/4W ±5% | 1 |
| R142 | RD5 6 1251 JS000 | Carbon 560 ohm 1/4W ±5% | 1 |
| R143 | RD6 8 2251 JS000 | Carbon 6.8k ohm 1/4W ±5% | 1 |
| R144 | RD1 0 3251 JS000 | Carbon 10k ohm 1/4W ±5% | 1 |
| R145 | RD8 2 3251 JS000 | Carbon 82k ohm 1/4W ±5% | 1 |
| R146 | RD8 2 2251 JS000 | Carbon 8.2k ohm 1/4W ±5% | 1 |
| R147 | RD2 7 0251 JS000 | Carbon 27 ohm 1/4W ±5% | 1 |
| R148 | RD6 8 1251 JS000 | Carbon 680 ohm 1/4W ±5% | 1 |
| R149 | RD5 6 0251 JS000 | Carbon 56 ohm 1/4W ±5% | 1 |
| R150 | RD3 9 2251 JS000 | Carbon 3.9k ohm 1/4W ±5% | 1 |
| R151 | RD2 2 2251 JS000 | Carbon 2.2k ohm 1/4W ±5% | 1 |
| R152 | RD1 8 4251 JS000 | Carbon 180k ohm 1/4W ±5% | 1 |
| R153 | RD2 7 3251 JS000 | Carbon 27k ohm 1/4W ±5% | 1 |
| R154 | RD3 3 2251 JS000 | Carbon 3.3k ohm 1/4W ±5% | 1 |
| R155 | RD2 7 1251 JS000 | Carbon 270 ohm 1/4W ±5% | 1 |
| R156 | RD1 1 3251 JS000 | Carbon 11k ohm 1/4W ±5% | 1 |
| R157 | RD1 0 5251 JS000 | Carbon 1M ohm 1/4W ±5% | 1 |
| R158 | RD2 2 3251 JS000 | Carbon 22k ohm 1/4W ±5% | 1 |
| R159 | RD1 0 3251 JS000 | Carbon 10k ohm 1/4W ±5% | 1 |
| R160 | RD3 3 3251 JS000 | Carbon 33k ohm 1/4W ±5% | 1 |
| R161 | RD2 2 3251 JS000 | Carbon 22k ohm 1/4W ±5% | 1 |
| R162 | RD2 2 3251 JS000 | Carbon 22k ohm 1/4W ±5% | 1 |
| R164 | RD4 7 3251 JS000 | Carbon 47k ohm 1/4W ±5% | 1 |
| R165 | RD2 2 3251 JS000 | Carbon 22k ohm 1/4W ±5% | 1 |
| R166 | RD1 0 3251 JS000 | Carbon 10k ohm 1/4W ±5% | 1 |
| R169 | RD1 0 3251 JS000 | Carbon 10k ohm 1/4W ±5% | 1 |
| R171 | RD1 0 3251 JS000 | Carbon 10k ohm 1/4W ±5% | 1 |
| R172 | RD2 2 3251 JS000 | Carbon 22k ohm 1/4W ±5% | 1 |
| R173 | RD3 0 3251 JS000 | Carbon 30k ohm 1/4W ±5% | 1 |
| R174 | RD1 0 3251 JS000 | Carbon 10k ohm 1/4W ±5% | 1 |
| R201 | RD1 5 3251 JS000 | Carbon 15k ohm 1/4W ±5% | 1 |
| R202 | RD2 7 4251 JS000 | Carbon 270k ohm 1/4W ±5% | 1 |
| R203 | RD4 7 0251 JS000 | Carbon 47 ohm 1/4W ±5% | 1 |
| R204 | RD2 2 4251 JS000 | Carbon 220k ohm 1/4W ±5% | 1 |
| R205 | RD1 5 3251 JS000 | Carbon 15k ohm 1/4W ±5% | 1 |
| R206 | RD1 0 2251 JS000 | Carbon 1k ohm 1/4W ±5% | 1 |
| R207 | RD1 0 4251 JS000 | Carbon 100k ohm 1/4W ±5% | 1 |
| R208 | RD1 8 2251 JS000 | Carbon 1.8k ohm 1/4W ±5% | 1 |
| R209 | RD3 9 2251 JS000 | Carbon 3.9k ohm 1/4W ±5% | 1 |
| R210 | RD3 9 4251 JS000 | Carbon 390k ohm 1/4W ±5% | 1 |
| R211 | RD3 9 2251 JS000 | Carbon 3.9k ohm 1/4W ±5% | 1 |
| R212 | RD1 0 4251 JS000 | Carbon 100k ohm 1/4W ±5% | 1 |
| R213 | RD3 9 2251 JS000 | Carbon 3.9k ohm 1/4W ±5% | 1 |
| R214 | RD4 7 2251 JS000 | Carbon 4.7k ohm 1/4W ±5% | 1 |
| R215 | RD1 0 2251 JS000 | Carbon 1k ohm 1/4W ±5% | 1 |
| R216 | RD1 0 2251 JS000 | Carbon 1k ohm 1/4W ±5% | 1 |
| R217 | RD2 2 4251 JS000 | Carbon 220k ohm 1/4W ±5% | 1 |
| R218 | RD3 3 1251 JS000 | Carbon 330 ohm 1/4W ±5% | 1 |
| R219 | RD1 5 4251 JS000 | Carbon 150k ohm 1/4W ±5% | 1 |
| R220 | RD1 0 2251 JS000 | Carbon 1k ohm 1/4W ±5% | 1 |
| R221 | RD2 7 4251 JS000 | Carbon 270k ohm 1/4W ±5% | 1 |
| R222 | RD3 3 2251 JS000 | Carbon 3.3k ohm 1/4W ±5% | 1 |
| R233 | RD4 7 3251 JS000 | Carbon 47k ohm 1/4W ±5% | 1 |
| R224 | RD1 8 1251 JS000 | Carbon 180 ohm 1/4W ±5% | 1 |
| R225 | RD1 0 3251 JS000 | Carbon 10k ohm 1/4W ±5% | 1 |
| R226 | RD1 0 3251 JS000 | Carbon 10k ohm 1/4W ±5% | 1 |
| R227 | RD5 6 2251 JS000 | Carbon 5.6k ohm 1/4W ±5% | 1 |
| R228 | RD1 0 2251 JS000 | Carbon 1k ohm 1/4W ±5% | 1 |
| R229 | RD1 0 2251 JS000 | Carbon 1k ohm 1/4W ±5% | 1 |
| R230 | RD2 2 2251 JS000 | Carbon 2.2k ohm 1/4W ±5% | 1 |
| R231 | RD1 0 5251 JS000 | Carbon 1M ohm 1/4W ±5% | 1 |
| R232 | RD2 2 2251 JS000 | Carbon 2.2k ohm 1/4W ±5% | 1 |
| R233 | RD6 8 2251 JS000 | Carbon 6.8k ohm 1/4W ±5% | 1 |
| R234 | RD1 5 2251 JS000 | Carbon 1.5k ohm 1/4W ±5% | 1 |
| R235 | RD4 3 4251 JS000 | Carbon 430k ohm 1/4W ±5% | 1 |
| R236 | RD6 2 3251 JS000 | Carbon 62k ohm 1/4W ±5% | 1 |
| R237 | RD5 6 2251 JS000 | Carbon 5.6k ohm 1/4W ±5% | 1 |
| R238 | RD7 5 1251 JS000 | Carbon 750 ohm 1/4W ±5% | 1 |

| Ref. No. | Part No. | Description | Q'ty |
|---|---|---|---|
| | AMPLIFIER P.C.B. ASSY | | |
| R239 | RD2 2 3251 JS000 | Carbon 22k ohm 1/4W ±5% | 1 |
| R240 | RD1 5 3251 JS000 | Carbon 15k ohm 1/4W ±5% | 1 |
| R241 | RD1 0 3251 JS000 | Carbon 10k ohm 1/4W ±5% | 1 |
| R242 | RD5 6 1251 JS000 | Carbon 560 ohm 1/4W ±5% | 1 |
| R243 | RD6 8 2251 JS000 | Carbon 6.8k ohm 1/4W ±5% | 1 |
| R244 | RD1 0 3251 JS000 | Carbon 10k ohm 1/4W ±5% | 1 |
| R245 | RD8 2 3251 JS000 | Carbon 82k ohm 1/4W ±5% | 1 |
| R246 | RD8 2 2251 JS000 | Carbon 8.2k ohm 1/4W ±5% | 1 |
| R247 | RD2 7 0251 JS000 | Carbon 27 ohm 1/4W ±5% | 1 |
| R248 | RD6 8 1251 JS000 | Carbon 680 ohm 1/4W ±5% | 1 |
| R249 | RD5 6 0251 JS000 | Carbon 56 ohm 1/4W ±5% | 1 |
| R250 | RD3 9 2251 JS000 | Carbon 3.9k ohm 1/4W ±5% | 1 |
| R251 | RD2 2 2251 JS000 | Carbon 2.2k ohm 1/4W ±5% | 1 |
| R252 | RD1 8 4251 JS000 | Carbon 180k ohm 1/4W ±5% | 1 |
| R253 | RD2 7 3251 JS000 | Carbon 27k ohm 1/4W ±5% | 1 |
| R254 | RD3 3 2251 JS000 | Carbon 3.3k ohm 1/4W ±5% | 1 |
| R255 | RD2 7 1251 JS000 | Carbon 270 ohm 1/4W ±5% | 1 |
| R256 | RD1 1 3251 JS000 | Carbon 11k ohm 1/4W ±5% | 1 |
| R257 | RD1 0 5251 JS000 | Carbon 1M ohm 1/4W ±5% | 1 |
| R258 | RD2 2 3251 JS000 | Carbon 22k ohm 1/4W ±5% | 1 |
| R259 | RD1 0 3251 JS000 | Carbon 10k ohm 1/4W ±5% | 1 |
| R260 | RD3 3 3251 JS000 | Carbon 33k ohm 1/4W ±5% | 1 |
| R261 | RD2 2 3251 JS000 | Carbon 22k ohm 1/4W ±5% | 1 |
| R262 | RD2 2 3251 JS000 | Carbon 22k ohm 1/4W ±5% | 1 |
| R264 | RD4 7 3251 JS000 | Carbon 47k ohm 1/4W ±5% | 1 |
| R265 | RD2 2 3251 JS000 | Carbon 22k ohm 1/4W ±5% | 1 |
| R266 | RD1 0 3251 JS000 | Carbon 10k ohm 1/4W ±5% | 1 |
| R269 | RD1 0 3251 JS000 | Carbon 10k ohm 1/4W ±5% | 1 |
| R271 | RD1 0 3251 JS000 | Carbon 10k ohm 1/4W ±5% | 1 |
| R272 | RD2 2 3251 JS000 | Carbon 22k ohm 1/4W ±5% | 1 |
| R273 | RD3 0 3251 JS000 | Carbon 30k ohm 1/4W ±5% | 1 |
| R274 | RD1 0 3251 JS000 | Carbon 10k ohm 1/4W ±5% | 1 |
| R301 | RD5 6 2251 JS000 | Carbon 5.6k ohm 1/4W ±5% | 1 |
| R302 | RD1 0 3251 JS000 | Carbon 10k ohm 1/4W ±5% | 1 |
| R303 | RD6 8 3251 JS000 | Carbon 68k ohm 1/4W ±5% | 1 |
| R304 | RD3 3 3251 JS000 | Carbon 33k ohm 1/4W ±5% | 1 |
| R305 | RD2 7 3251 JS000 | Carbon 27k ohm 1/4W ±5% | 1 |
| R306 | RD3 9 3251 JS000 | Carbon 39k ohm 1/4W ±5% | 1 |
| R307 | RD3 9 3251 JS000 | Carbon 39k ohm 1/4W ±5% | 1 |
| R308 | RD1 8 0251 JS000 | Carbon 18 ohm 1/4W ±5% | 1 |
| R309 | RH3 9 1501 JZ000 | Metal 390 ohm 1/2W ±5% | 1 |
| R310 | RH2 7 1501 JH000 | Metal 270 ohm 1/2W ±5% | 1 |
| R316 | RD1 5 4251 JS000 | Carbon 150k ohm 1/4W ±5% | 1 |
| R317 | RD6 8 2251 JS000 | Carbon 6.8k ohm 1/4W ±5% | 1 |
| S1 | 4 2319 70598 | Slide Switch (Record/Play) | 1 |
| S2 | 4 2319 74110 | Push Switch (Input Select) | 1 |
| S3 | 4 2319 74110 | Push Switch (Tape Select) | 1 |
| S4 | 4 2319 74110 | Push Switch (Tape Select) | 1 |
| S5 | 4 2319 74120 | Push Switch (DOLBY NR) | 1 |
| | MECHANISM | | |
| VR1 | 4 1329 76120 | Left Volume P.C.B. Assy (Input Level, A-50k) | 1 |
| VR2 | 4 1329 76110 | Right Volume P.C.B. Assy (Input Level, A-50k) | 1 |
| J1 | 4 1329 76340 | Microphone Jack P.C.B. Assy | 1 |
| S6 | 4 2319 73110 | Leaf Switch (Muting) | 1 |
| S7 | 4 2319 72010 | Leaf Switch (Motor) | 1 |
| S8 | 4 1329 76130 | Record Mute Assy (Record Mute) | 1 |
| S9 | ⚠ 4 2319 73970 | Power Switch | 1 |
| S10 | ⚠ 4 2319 72140 | Slide Switch (Voltage Select) | 1 |
| J3 | 4 2359 73902 | Jack 1P (Headphones) | 1 |
| CN1 | 4 2359 75000 | Connector 6P Assy | 1 |
| CN2 | 4 2359 74990 | Connector 3P Assy | 1 |
| | ⚠ 4 2379 70560 | Terminal | 1 |
| | 4 2379 70650 | Ring Terminal | 4 |
| HD1 | 4 2429 71670 | R/P Head | 1 |
| HD2 | 4 2429 71710 | Erase Head | 1 |
| | ⚠ 4 2439 70352 | Power Cord | 1 |
| T302 | ⚠ 4 2519 73190 | Power Transformer | 1 |

# PARTS LIST (Continued)

| Ref. No. | Part No. | Description | Q'ty |
|---|---|---|---|
| | MECHANISM | | |
| ME1 | 4 5119 70640 | Indicator | 1 |
| | 4 5279 70836 | Motor | 1 |
| PL1 | 4 6129 70480 | Lamp | 1 |
| | 141 2 8519 75500 | Spring | 1 |
| | 141 0 3119 14504 | Chassis Assy | 1 |
| | 141 0 3169 05200 | Chassis Bracket Assy | 1 |
| | 141 0 5219 03901 | Flywheel Assy | 1 |
| | 141 0 5419 02401 | Pinch Roller Assy | 1 |
| | 141 0 5519 05901 | Friction Assy | 1 |
| | 141 0 5519 06400 | Eject Gear Assy | 1 |
| | 141 0 7439 05400 | Fast Wind Arm Assy | 1 |
| | 141 0 7439 06300 | Take-up Arm Assy | 1 |
| | 141 2 8519 75300 | Spring, Pause Lever | 1 |
| | 141 2 1149 18700 | Cabinet Compartment | 1 |
| | 141 2 1149 21500 | Chassis Panel | 1 |
| | 141 2 1249 17501 | Cassette Lid Frame | 1 |
| | 141 2 1519 12202 | Reflection | 1 |
| | 141 2 1539 12100 | Dress Meter | 1 |
| | 141 2 1619 52203 | Lever Button | 1 |
| | 141 2 1619 52207 | Lever Button | 5 |
| | 141 2 1619 62405 | Reset Button | 1 |
| | 141 2 3119 12901 | Cabinet Chassis | 1 |
| | 141 2 3229 29200 | Volume Shield Plate | 1 |
| | 141 2 3519 36901 | Flywheel Support | 1 |
| | 141 2 3519 37000 | Cassette Holder, Left | 1 |
| | 141 2 3519 37100 | Cassette Holder, Right | 1 |
| | 141 2 3519 50500 | Switch Bracket | 1 |
| | 141 2 3519 17800 | Spacer, Head | 1 |
| | 141 2 3529 17900 | Spacer, Brake | 1 |
| | 141 2 3529 18101 | Spacer, Head | 1 |
| | 141 2 3529 19100 | Spacer, Base | 1 |
| | 141 2 3529 19401 | Spacer, Gear | 1 |
| | 141 2 3769 08300 | R/P Head Post | 1 |
| | 141 2 3899 10400 | Heyco Bushing | 1 |
| | 141 2 4219 04000 | Screw | 1 |
| | 141 2 4219 05400 | Screw, Washer | 3 |
| | 141 2 4219 12100 | Screw, Washer | 1 |
| | 141 2 4219 13000 | Screw | 1 |
| | 141 2 4219 13200 | Screw, Washer | 3 |
| | 141 2 4219 17900 | Screw | 2 |
| | 141 2 4219 22600 | Screw, Poly Wave | 2 |
| | 141 2 4459 20501 | Brake Cover | 2 |
| | 141 2 4459 21401 | Cushion | 1 |
| | 141 2 4469 00500 | Flywheel Thrust | 1 |
| | 141 2 4469 22000 | Cushion | 4 |
| | 141 2 4539 06700 | Washer | 1 |
| | 141 2 4539 15800 | Washer | 2 |
| | 141 2 4539 16200 | Washer | 1 |
| | 141 2 4539 18400 | Washer | 1 |
| | 141 2 4569 05500 | Washer | 1 |
| | 141 2 4729 04100 | Lug | 1 |
| | 141 2 4729 04200 | Lug | 1 |
| | 141 2 4729 05300 | Wire Band | 1 |
| | 141 2 5319 03500 | Fin Reel | 2 |
| | 141 2 5319 05100 | Gear Reel | 2 |
| | 141 2 5369 00400 | Cap, Reel Plate | 2 |
| | 141 2 5519 04400 | Intermediate Pulley | 1 |
| | 141 2 5519 22000 | Take-up Gear | 1 |
| | 141 2 5519 22300 | Fast Wind Gear | 2 |
| | 141 2 5519 22400 | Rewind Gear | 1 |
| | 141 2 5519 27200 | Auto Shut-off Pulley | 1 |
| | 141 2 5559 04500 | Eject Gear Plate | 1 |
| | 141 2 5649 04300 | Counter Belt | 1 |
| | 141 2 5649 09900 | Take-up Belt | 1 |
| | 141 2 5649 11000 | Drive Belt | 1 |
| | 141 2 5649 11100 | Auto Shut-off Belt | 1 |
| | 141 2 6129 04500 | Spindle, Lever Button | 1 |
| | 141 2 6139 13101 | Button Frame | 1 |
| | 141 2 7149 03400 | Brake | 1 |
| | 141 2 7319 31102 | Plate | 1 |

| Ref. No. | Part No. | Description | Q'ty |
|---|---|---|---|
| | MECHANISM | | |
| | 141 2 7319 32200 | Slide Base Plate | 1 |
| | 141 2 7319 33000 | Cassette Lid Lock Plate | 1 |
| | 141 2 7319 33100 | Lock Plate | 1 |
| | 141 2 7319 34000 | Pause Plate | 1 |
| | 141 2 7359 02000 | Record Wire | 1 |
| | 141 2 7419 48100 | Fast Wind Lever | 1 |
| | 141 2 7419 48300 | Record Stop Lever | 1 |
| | 141 2 7419 51100 | Select Lever | 1 |
| | 141 2 7419 51600 | Auto Shut-off Lever | 1 |
| | 141 2 7419 51700 | Stop Lever | 1 |
| | 141 2 7419 51900 | Eject Stop Lever | 1 |
| | 141 2 7419 53500 | Record Link Lever | 1 |
| | 141 2 7419 55900 | Pause Lever | 1 |
| | 141 2 7419 64700 | Record Lever | 1 |
| | 141 2 8119 07101 | Counter | 1 |
| | 141 2 8139 05500 | Counter Bracket | 1 |
| | 141 2 8219 24400 | Chip, Cassette Lid Lock | 1 |
| | 141 2 8419 09400 | Interlock Lever | 1 |
| | 141 2 8429 05400 | Record Plate | 1 |
| | 141 2 8519 03600 | Spring, Shut-off Lever | 1 |
| | 141 2 8519 19300 | Spring, Brake | 1 |
| | 141 2 8519 47400 | Spring, Head | 1 |
| | 141 2 8519 67100 | Spring, Fast Wind | 1 |
| | 141 2 8519 67700 | Spring, Pinch Roller | 1 |
| | 141 2 8519 67900 | Spring, Reel | 1 |
| | 141 2 8519 67901 | Spring, Supply Reel | 1 |
| | 141 2 8519 68100 | Spring, Pause | 1 |
| | 141 2 8519 70100 | Spring, Lever Button | 3 |
| | 141 2 8519 70200 | Spring, Slide Base | 1 |
| | 141 2 8519 70300 | Spring, Pause Plate | 2 |
| | 141 2 8519 70400 | Spring, Slide Base Plate | 1 |
| | 141 2 8519 70500 | Spring, Record Plate | 1 |
| | 141 2 8519 71700 | Spring, Cassette Lid | 1 |
| | 141 2 8519 71800 | Spring, Interlock | 1 |
| | 141 2 8519 71900 | Spring, Take-up Arm | 1 |
| | 141 2 8519 72000 | Spring, Auto Shut-off | 1 |
| | 141 2 8519 73400 | Spring, Stop Lever | 1 |
| | 141 2 8519 80400 | Spring, Earth | 1 |
| | 141 2 8519 89600 | Spring, Record Lever | 1 |
| | 141 2 8539 31001 | Spring, Base | 1 |
| | 141 2 8539 31300 | Spring, Cassette | 1 |
| | 141 2 8539 31400 | Spring, Cassette | 2 |
| | 141 2 8539 35800 | Spring, Flywheel | 1 |
| | 141 2 8539 36700 | Spring, Earth | 1 |
| | 110 3 3202 00082 | Tooth Outer Washer-B M2.0 | 1 |
| | 101 3 1702 00811 | Screw, Bind Hd. +M2.0x8 | 3 |
| | 101 3 1302 60511 | Screw, Pan Hd. +M2.6x5 | 4 |
| | 101 3 1702 00618 | Screw, Bind Hd. +M2.0x6 | 2 |
| | 101 3 2502 01011 | Screw, Cylinder Hd. -M2.0x10 | 1 |
| | 103 3 1302 60511 | Screw, Pan Hd. Tapping-2 +M2.6x5 | 3 |
| | 103 3 1302 60611 | Screw, Pan Hd. Tapping-2 +M2.6x6 | 4 |
| | 103 3 1302 61211 | Screw, Pan Hd. Tapping-2 +M2.6x12 | 2 |
| | 103 3 1702 00611 | Screw, Bind Hd. Tapping-2 +M2.0x6 | 2 |
| | 103 3 1702 60811 | Screw, Bind Hd. Tapping-2 +M2.6x8 | 2 |
| | 103 3 1703 01011 | Screw, Bind Hd. Tapping-2 +M3.0x10 | 1 |
| | 103 3 1703 01211 | Screw, Bind Hd. Tapping-2 +M3.0x12 | 5 |
| | 103 3 1703 01218 | Screw, Bind Hd. Tapping-2 +M3.0x12 | 2 |
| | 110 3 9260 60025 | Washer M2.6x6.0x0.2 | 1 |
| | 110 3 9321 00102 | Washer M3.2x10.0x1.0 | 1 |
| | 112 3 1302 00082 | E Ring M2.0 | 1 |
| | 112 3 1302 50082 | E Ring M2.5 | 1 |
| | 131 3 1302 00611 | Screw, Pan Hd. C SW +M2x6 | 2 |
| | 131 3 1303 00511 | Screw, Pan Hd. C SW +M3.0x5 | 4 |
| | 135 3 1303 00611 | Screw, Pan Hd. C PW +M3.0x6 | 1 |
| | 143 3 1302 60811 | Screw, Pan Hd. Tapping-B +M2.6x8 | 1 |
| | 143 3 1302 60818 | Screw, Pan Hd. Tapping-B +M2.6x8 | 4 |
| | 143 3 1303 01011 | Screw, Pan Hd. Tapping-B +M3.0x10 | 1 |
| | 143 3 1303 01811 | Screw, Pan Hd. Tapping-B +M3.0x18 | 1 |
| | 143 3 1903 00811 | Screw, Brazier Hd. Tapping-B +M3.0x8 | 5 |

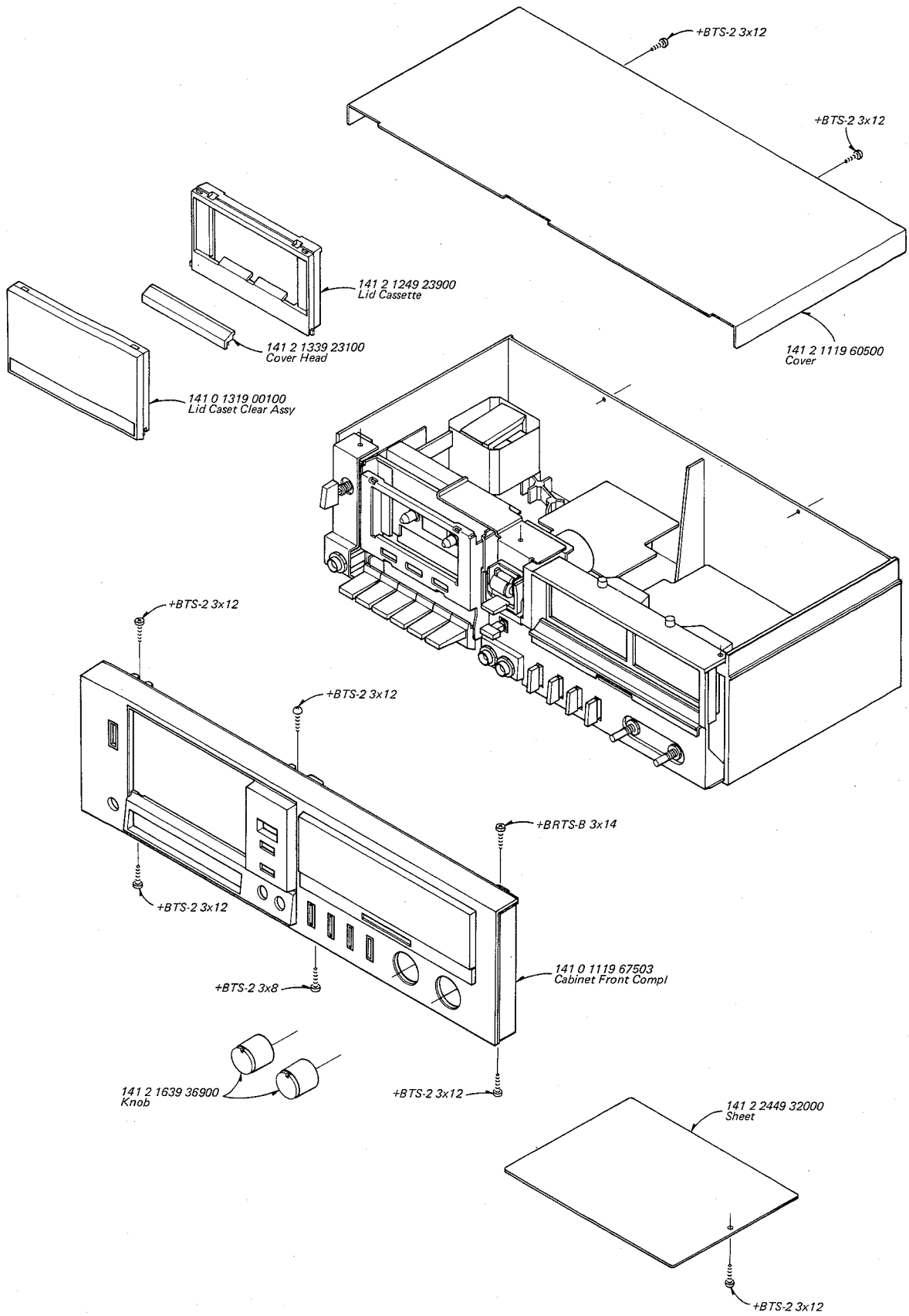
# PARTS LIST (Continued)

| Ref. No. | Part No. | Description | Q'ty |
|---|---|---|---|
| | MECHANISM | | |
| | 143 3 1903 01011 | Screw, Brazier Hd. Tapping-B +M3.0x10 | 13 |
| | 143 3 1903 01211 | Screw, Brazier Hd. Tapping-B +M3.0x12 | 4 |
| Q311 | 4 2039 70601 | Transistor, 2SC1846 | 1 |
| | 4 2269 33320 | Transistor, P.C.B. | 1 |
| C332 | CD2 2 7160 0001V | Electrolytic 220 μF 16V | 1 |

NOTES: 1. Parts order must contain Model Number, Part Number and Description.
2. Ordering quantity of screws and resistors must be multiple of 10 pcs.

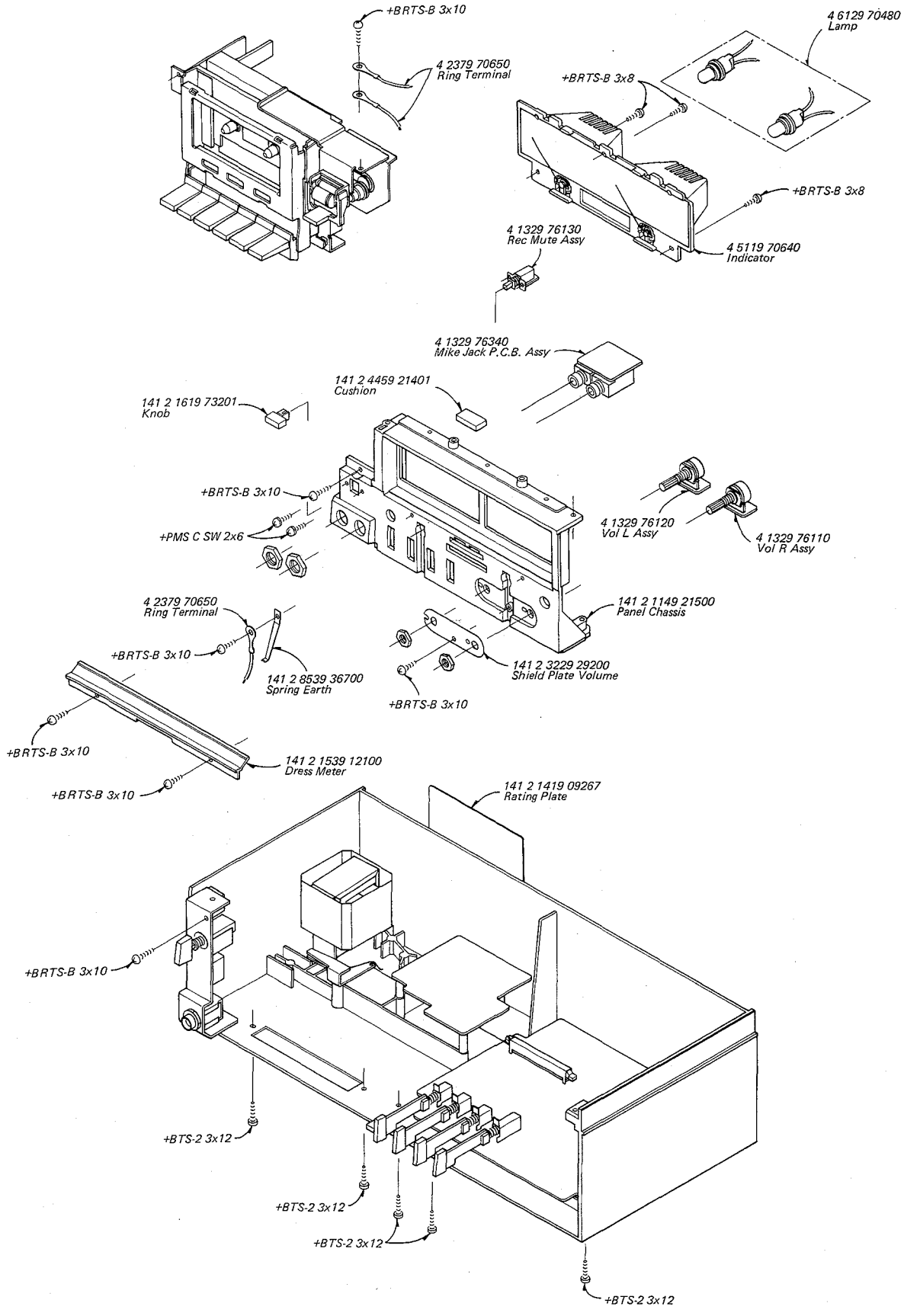
# EXPLODED VIEW

**(Cabinet -1)**



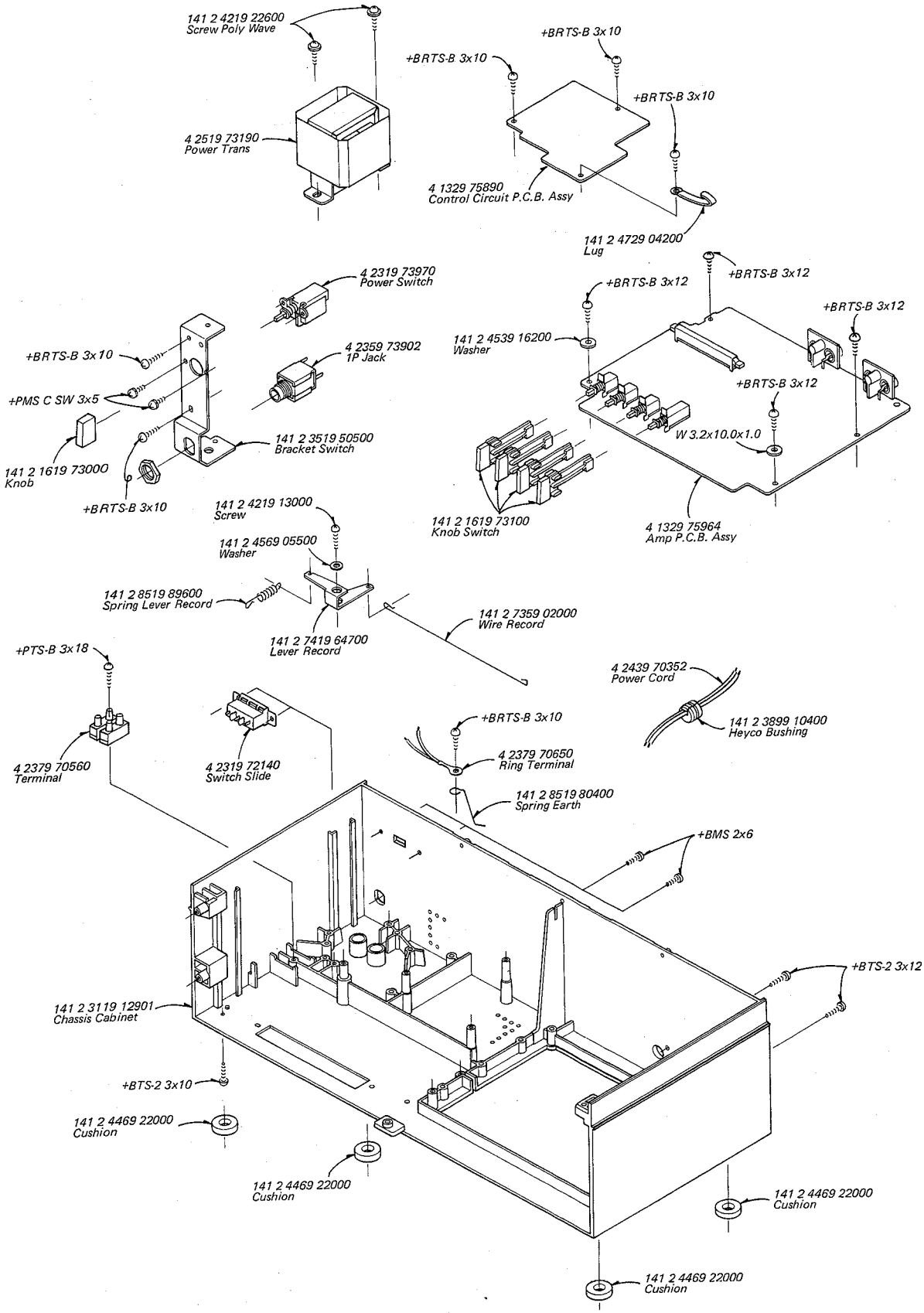
# EXPLODED VIEW (Continued)

## (Cabinet -2)



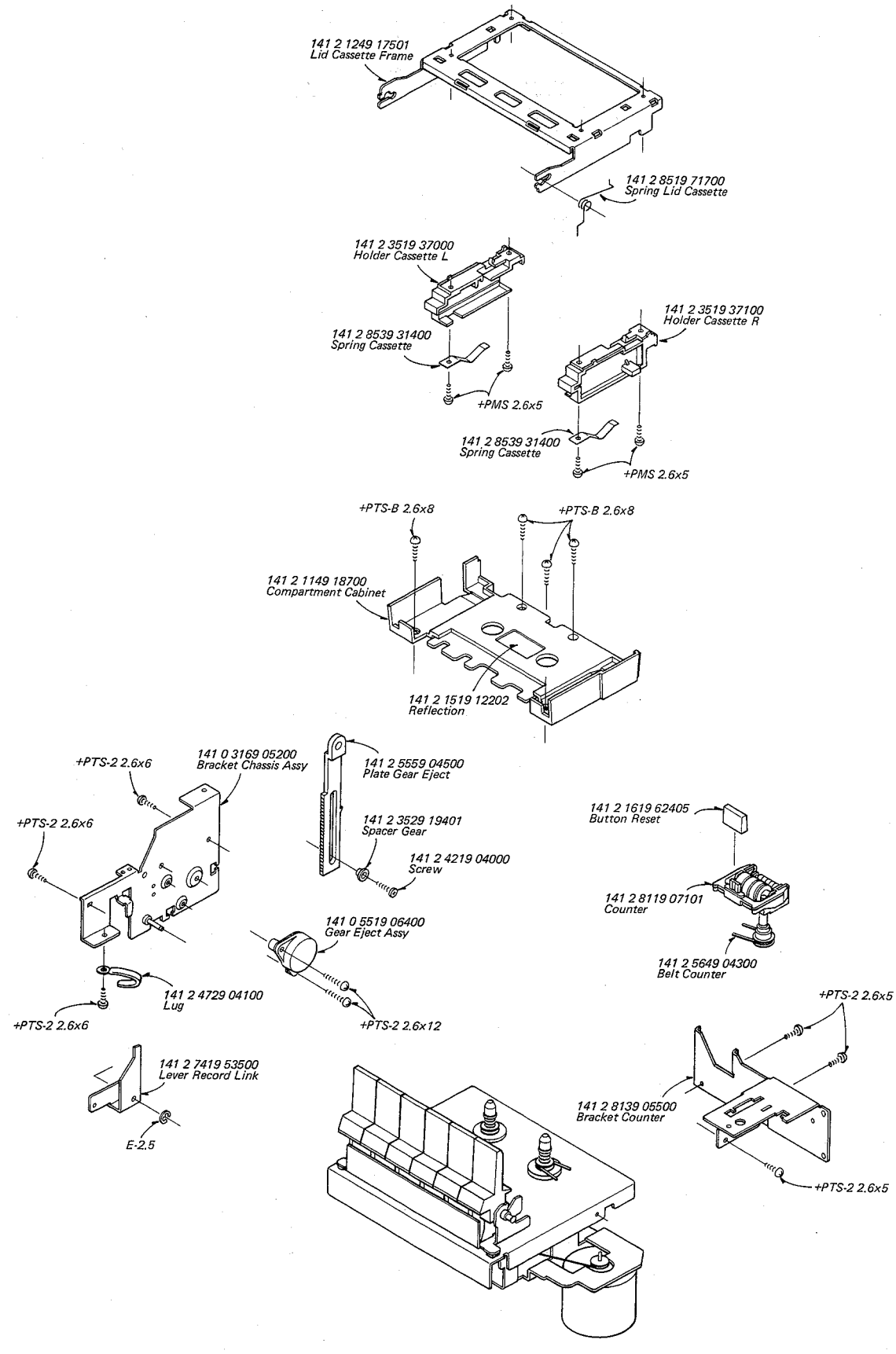
# EXPLODED VIEW (Continued)

**(Cabinet -3)**



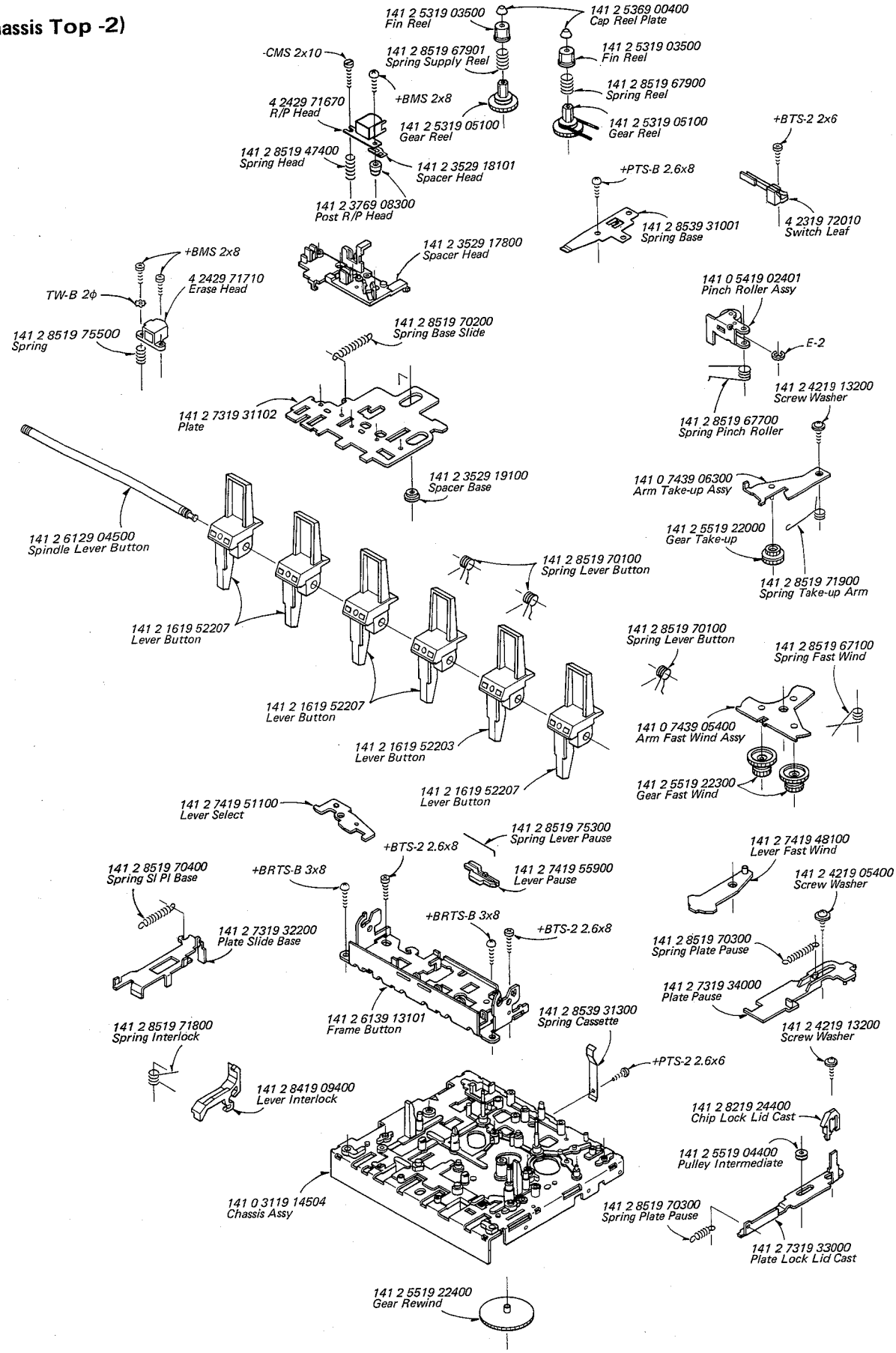
# EXPLODED VIEW (Continued)

## (Chassis Top -1)



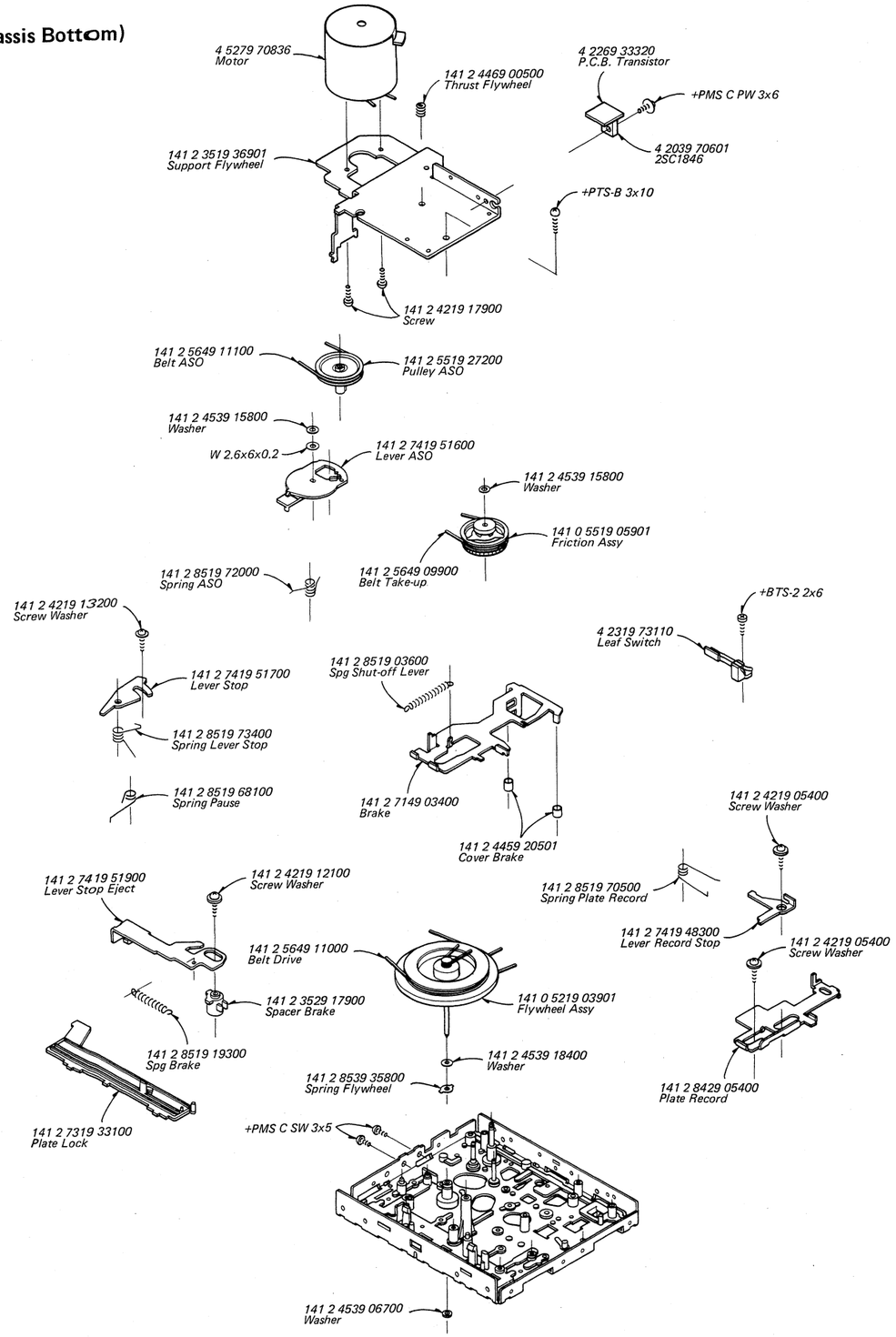
# EXPLODED VIEW (Continued)

**(Chassis Top -2)**



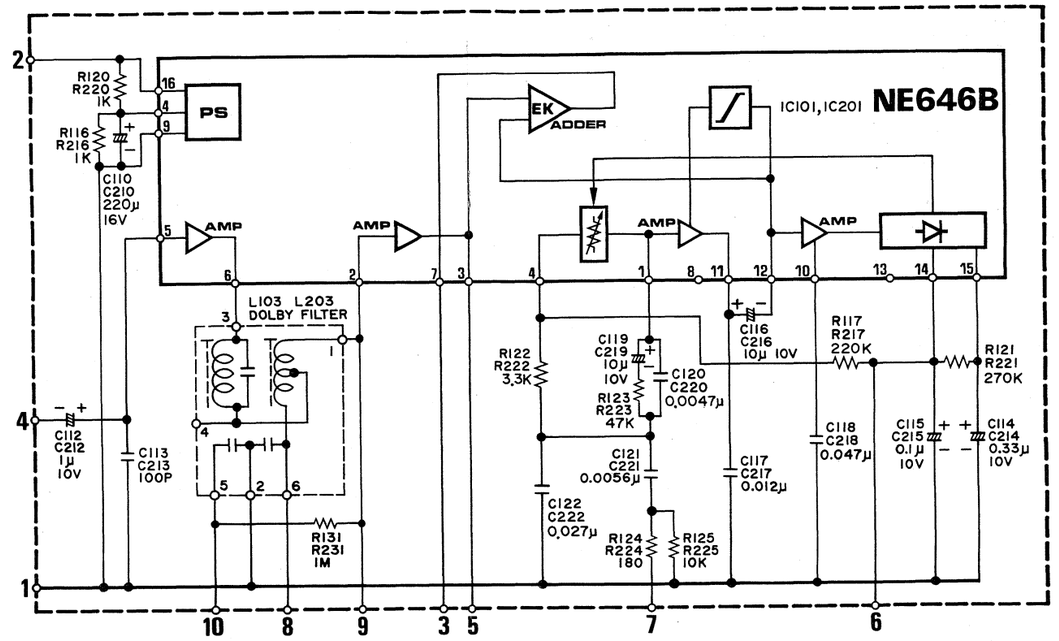
# EXPLODED VIEW (Continued)

(Chassis Bottom)

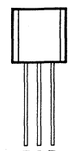
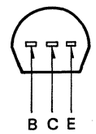
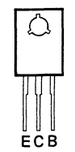




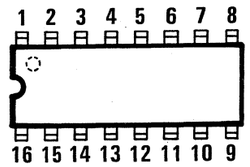

# DOLBY NR SCHEMATIC DIAGRAM



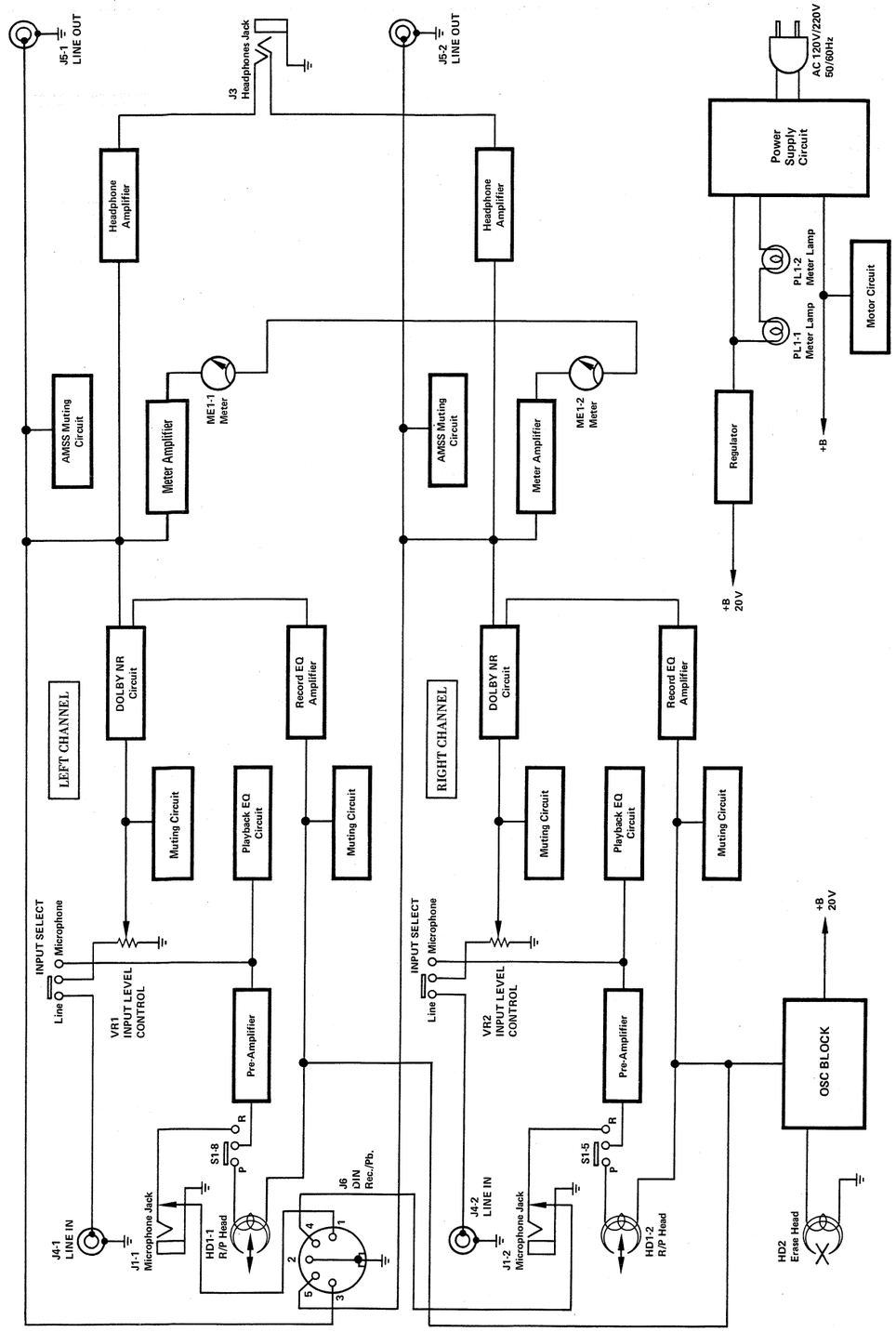

# IC & TRANSISTOR LEAD IDENTIFICATION

| FRONT VIEW | BOTTOM VIEW | TRANSISTOR |
|---|---|---|
|   |   | 2SC536<br>2SC693<br>2SC1815 |
|   | | 2SC1846 |
| TERMINAL NAME | | |
| B⇒ BASE<br>C⇒ COLLECTOR<br>E⇒ EMITTER | | |

IC NE646B BOTTOM VIEW



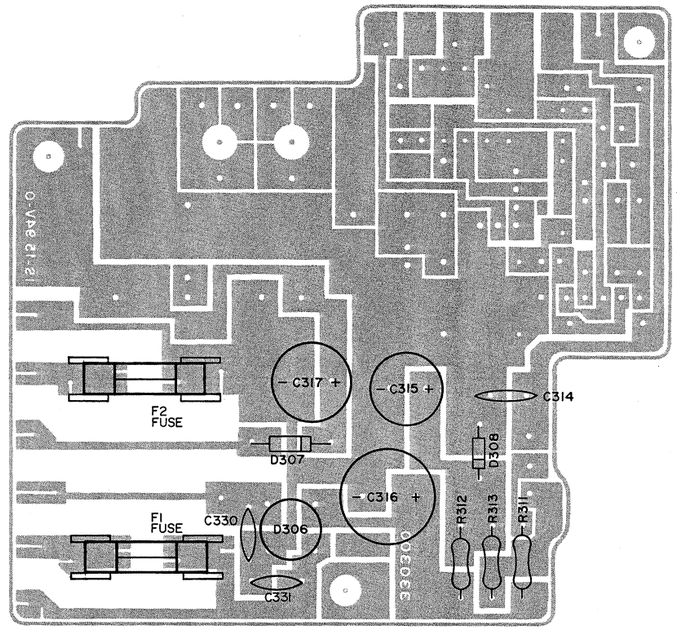
# BLOCK DIAGRAM



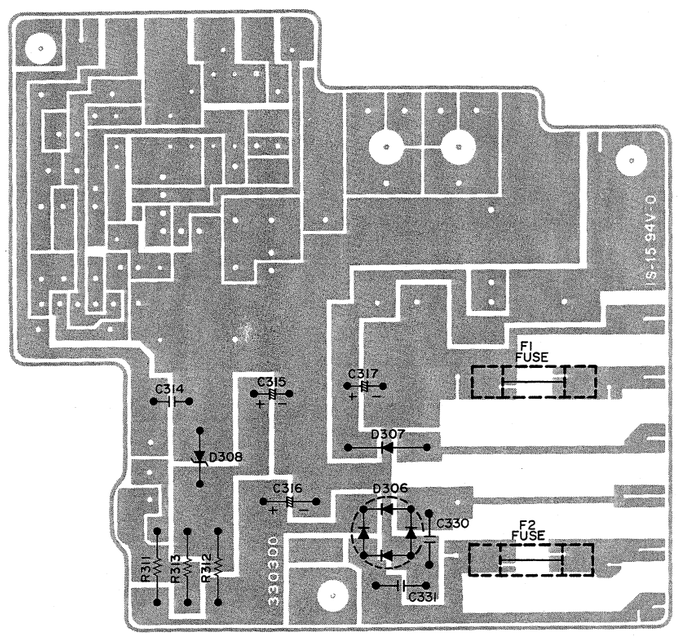



# CONTROL P.C.BOARD

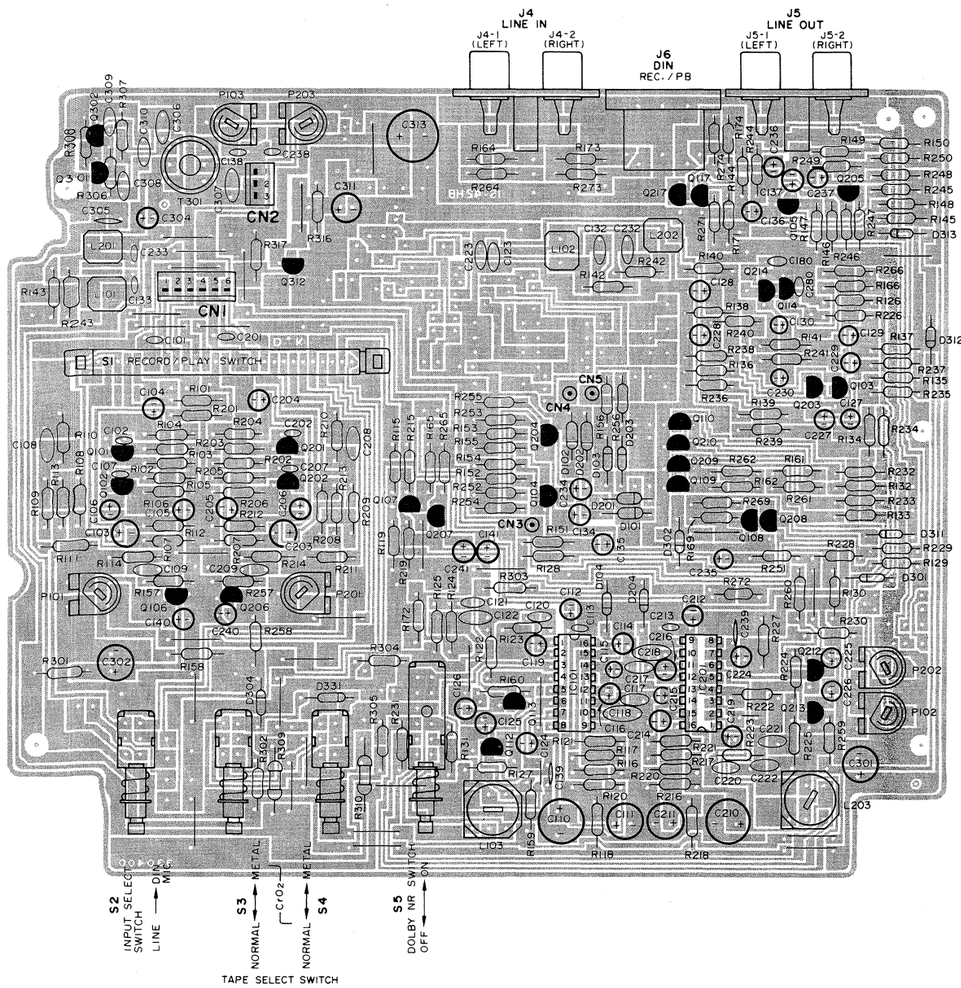
**(Top View)**




**(Bottom View)**

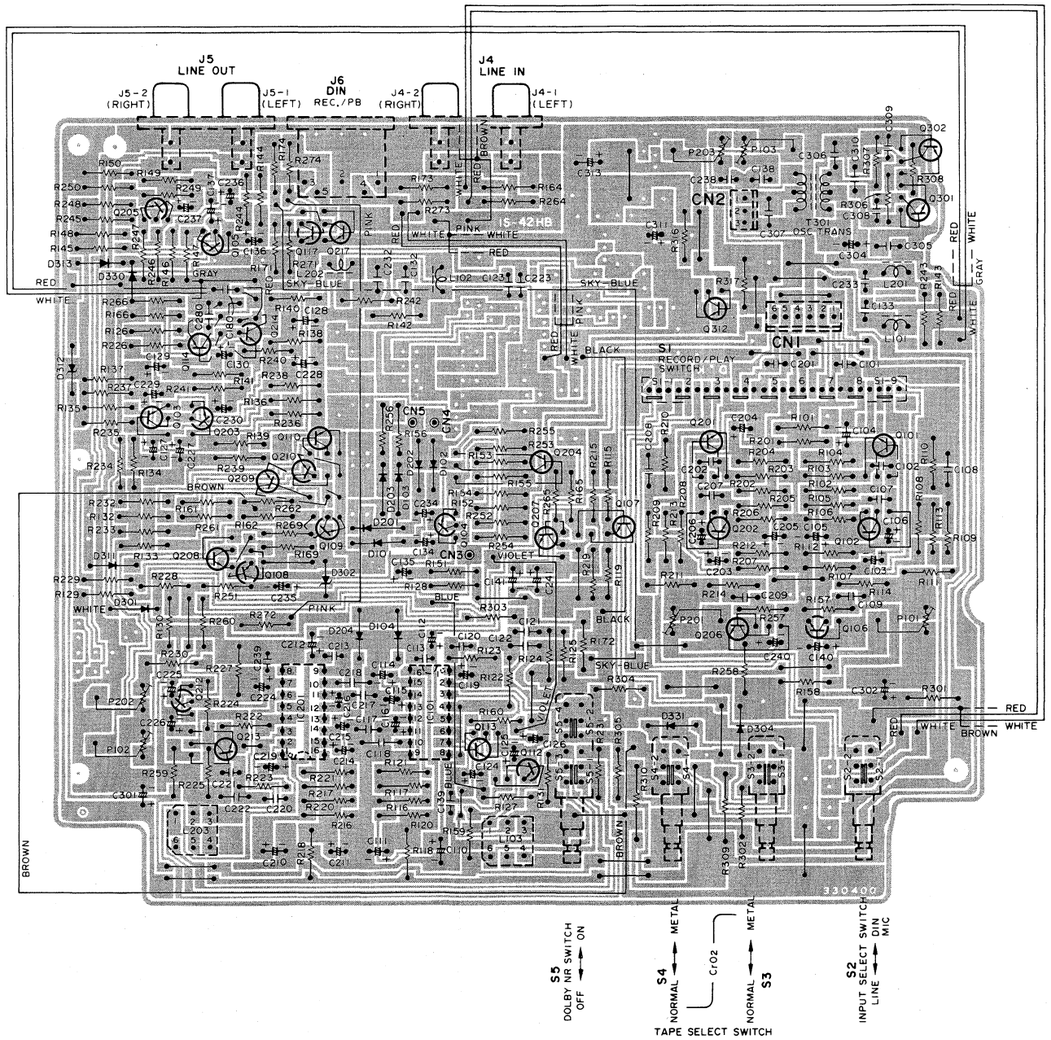


# AMPLIFIER P.C.BOARD(Top View)

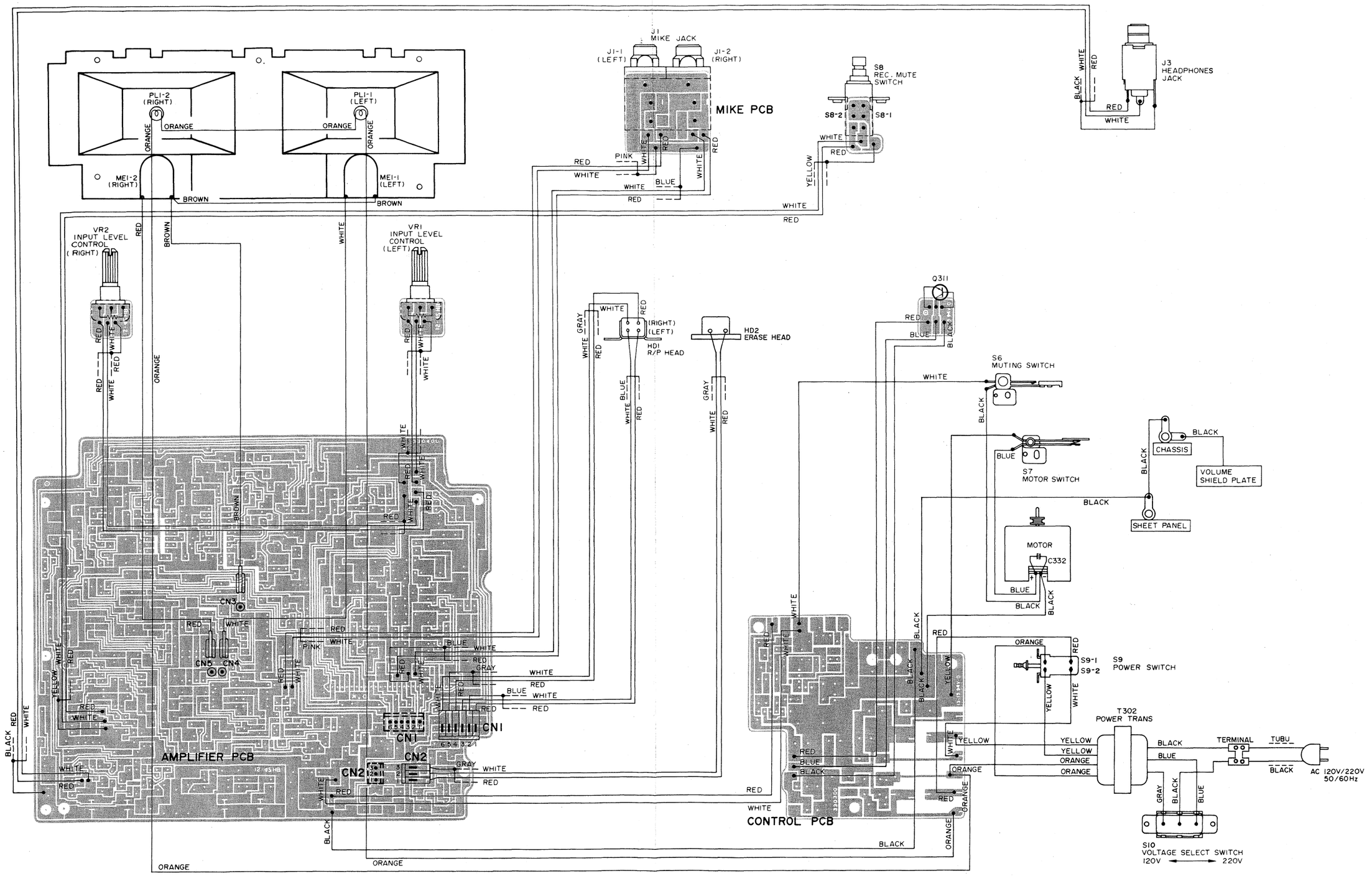




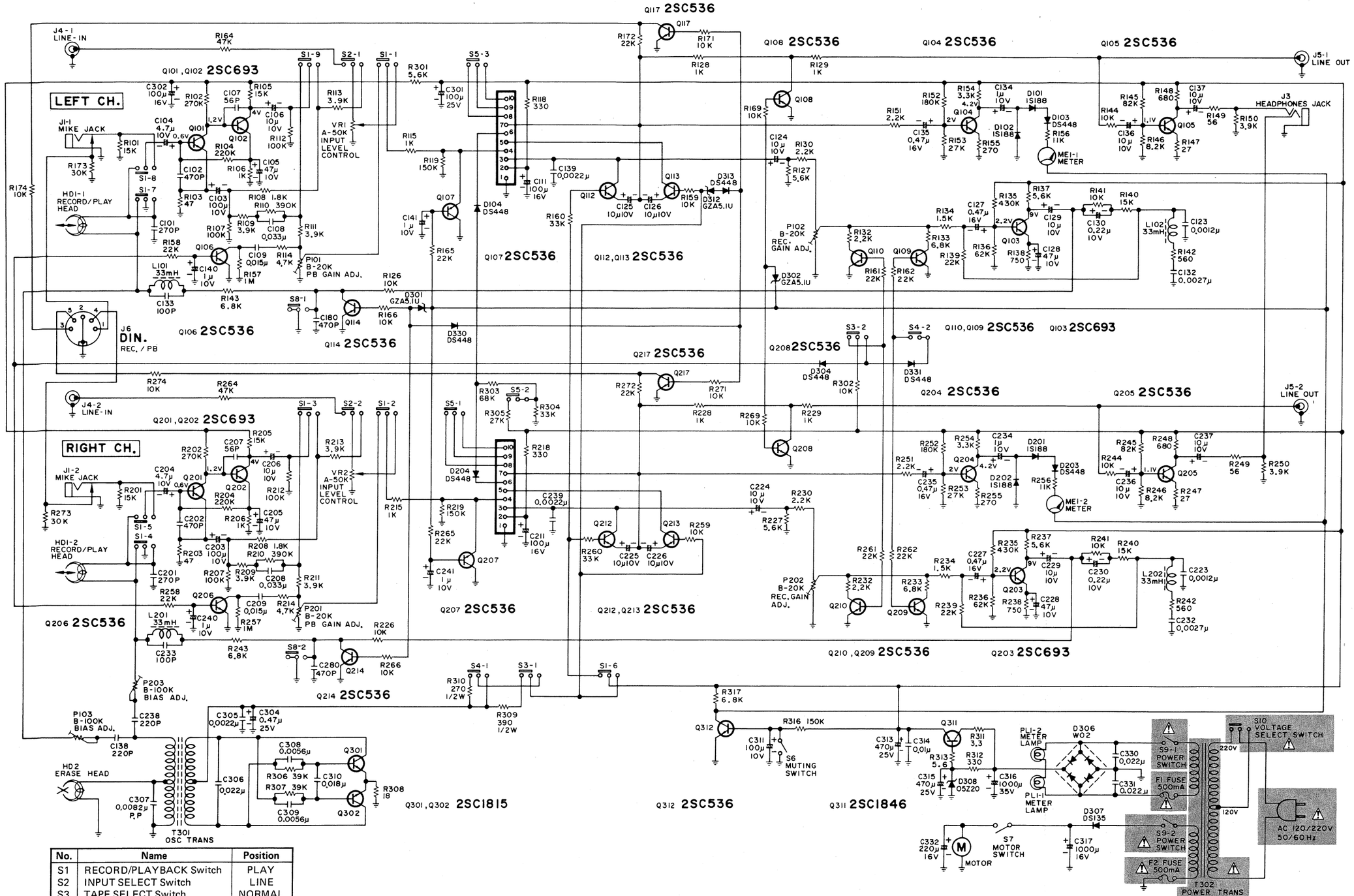

# AMPLIFIER P.C.BOARD(Bottom View)



# WIRING DIAGRAM



# SCHEMATIC DIAGRAM




| No. | Name | Position |
|---|---|---|
| S1 | RECORD/PLAYBACK Switch | PLAY |
| S2 | INPUT SELECT Switch | LINE |
| S3 | TAPE SELECT Switch | NORMAL |
| S4 | TAPE SELECT Switch | NORMAL |
| S5 | DOLBY NR Switch | OFF |
| S6 | MUTING Switch | CLOSE |
| S7 | MOTOR Switch | OFF |
| S8 | REC. MUTE Switch | OFF |
| S9 | POWER Switch | OFF |
| S10 | VOLTAGE SELECT Switch | 220V |

**PRODUCT SAFETY NOTICE**

PRODUCT SAFETY SHOULD BE CONSIDERED WHEN A COMPONENT REPLACEMENT IS MADE IN ANY AREA OF AN UNIT. COMPONENTS INDICATED BY A MARK ⚠ IN THIS SCHEMATIC DIAGRAM SHOW COMPONENTS WHOSE VALUE HAS SPECIAL SIGNIFICANCE TO PRODUCT SAFETY. IT IS PARTICULARLY RECOMMENDED THAT ONLY PARTS SPECIFIED ON THE ATTACHED PARTS LIST BE USED FOR COMPONENT REPLACEMENT POINTED OUT BY THE MARK.